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### NOTES ON CRATAEGUS

C. S. SARGENT

Mr. Ernest J. Palmer in going critically through *Crataegus* in the Arboretum herbarium has made some interesting observations.

One of the most interesting of these is the fact that *Crataegus olivacea* (Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 153 [1910]) based on a specimen of the *Crus-galli* group collected in the valley of the Little Juniata River near Altoona, Pennsylvania, in 1905 by B. H. Smith in May and by C. S. Sargent in September, is the same as the plant cultivated in Europe for at least one hundred years as *Mespilus Fontanesiana* Spach and *Crataegus Fontanesiana* Steudel; also the plant raised from seeds received from the Paris Museum in 1876 and grown in the Arboretum as *Crataegus Fortunei*, an unpublished name, proves to be *Crataegus Fontanesiana*. This discovery is interesting as showing that the general opinion in Europe that *C. Fontanesiana* was of North American origin was correct.

*Crataegus exigua* Sargent (in *Rhodora*, v. 52 [February 1903]) is probably best considered, as pointed out by Eggleston (in *Rhodora*, x. 75 [1908]) as a variety of *Crataegus Crus-galli*, *C. Crus-galli* var. *exigua*. This plant must not be confused with the *C. exigua* of Ashe (in Jour. Elisha Mitchell Sci. Soc. XIX. 20 [1903]) from Wisconsin, said to be a species of *Tenuifoliae*, but not represented in the Arboretum herbarium.

*Crataegus Crus-galli* L., after a longer study of the genus, must be considered more widely distributed and more variable in the shape of the leaves than was formerly believed; and Mr. Palmer rightly suggests that *C. stronglylphylla* Sargent (in Rep. Mo. Bot. Gard. XIX. 44 [1908]) from Webb City, Missouri, cannot be distinguished by any good character from the Linnaean species and must be considered a synonym of it.

*Crataegus arduennae* Sargent. To this *Crus-galli* species with 10 stamens and yellow anthers, first noticed at Glenellyn, Illinois, may probably best be referred the following Missouri plants as synonyms: *Crataegus ferox* Sargent (in Rep. Mo. Bot. Gard. XIX. 52 [1908]); *C. albanthera* Sargent (l. c. 53); and *C. candens* Sargent (l. c. 55).

*Crataegus sordida* var. *villosa*, n. var.

The typical form of *C. sordida* Sargent (in Bot. Gaz. xxxiii. 114 [1902]), a *Punctatae* species from southeastern Missouri, collected by B. F. Bush at Pleasant Grove, is quite glabrous with the exception of a few scattered hairs on the young branches and inflorescence which become glabrous before autumn, but two trees discovered by Palmer growing together on the border of upland woods near Fulton in southern Arkansas in 1914, differ so distinctly in their densely villose young branches, corymbs and calyx with matted hairs more or less persistent during the season that it seems necessary to consider these trees as representing a variety for which I propose the name *villosa*. As the type of this variety may be taken Palmer's Nos. 20,709 and 22,266, collected April 5 and October 11, 1922. To this variety should also be referred specimens from Williamsville, Missouri, collected first by B. F. Bush, April 25 and October 10, 1912 (Nos. 6649, 6941) and by Palmer, June 30, 1914 (No. 6147), April 20 and October 9, 1920 (Nos. 17,204, 17,245, 19,413, 19,414).

*Crataegus furcata* Sargent (in Rep. Mo. Bot. Gard. xix. 86 [1908]) was based on a shrub forming thickets on limestone hills near Carterville and Webb City in southwestern Missouri. It has since been found by Mr. Palmer, who has seen many thousands of these plants, that when it descends into valleys along streams in that part of the state it then grows as a tree indistinguishable from the widely distributed *C. viridis* Linnaeus of which *C. furcata* must be considered a synonym.

*Crataegus ignava* has been used for two different plants, first by Beadle in 1901 for a species of the *Flavae* group and second by Sargent in 1910 (in Proc. Acad. Nat. Sci. Phila. lxii. 228) for a handsome shrubby species of the *Pruinosae* group first collected in 1909 near Bedford Springs, Bedford County, Pennsylvania, by the late Benjamin H. Smith of Philadelphia, for which I now propose the name of *Crataegus neosmithii*.

The name of *Crataegus ampla* has been given by Sargent to two different plants, the first a species of *Tenuifoliae* from Kutztown, Pennsylvania, published in September, 1905, and the second a species of *Coccineae* from Lanesboro, Massachusetts, published in November, 1905 (in Rhodora, vii. 208). For the Massachusetts species the name *C. neofaxonii* is now proposed, this plant having been discovered in 1899 by the late Charles E. Faxon.

*Crataegus Ridgwayi*, n. sp.

Leaves ovate, acute or acuminate at apex, broad and rounded or slightly cordate or occasionally cuneate at base, usually slightly lobed with acuminate lobes, and sharply often doubly serrate, scabrate above early in the season by short early deciduous hairs and villose below, especially on the midrib and veins, dark green on the upper surface, rather paler on the lower surface, 4.5-8 cm. long and 3.5-8 cm. wide; petioles slender,



densely villose when the flowers open, becoming nearly glabrous, 1.2–3 cm. in length; stipules oblanceolate, long-acuminate, coarsely glandular-serrate, 1–1.2 cm. long, deciduous in May. Flowers opening early in April, 2 cm. in diameter, in compact many-flowered villose corymbs, furnished with deciduous hairs; calyx-tube glabrous, the lobes narrow-acuminate, coarsely glandular-serrate, glabrous on the outer surface, sparingly villose on the inner surface; stamens 20; anthers "brownish gray"; styles 2 or 3, surrounded at the base by a conspicuous tuft of long white hairs. Fruit subglobose to short-oblong, scarlet, 1.5 cm. in length; nutlets 5, acute at the ends, broadest at the apex, obscurely grooved on the back, 6–8 cm. in length.

A slender tree 4–5 m. high with a trunk rarely more than 15 cm. in diameter, and spreading branches; common in open woods, growing on creek bottoms and dry uplands near Olney, Richland County, south-eastern Illinois, *R. Ridgway*, May 14, 1921, April 29 and August 20, 1924 (Nos. 1375, 2087 & 2041, type); *E. J. Palmer*, May 14, 1923 (No. 22615).

Judging by the habit of this tree and the shape of the leaves it is an unusually small-fruited *Molles* species approaching in the size of the fruit plants of the *Coccineae* group which, although common in northern Illinois, is not found as far south anywhere as Richland County.

I am glad to associate with this interesting plant the name of Robert Ridgway, the distinguished ornithologist.

× *Crataegus Whitakeri*, n. hyb.? (*Molles* sp.? × *Macracanthae* sp.?).

Leaves broad-ovate, acute, rounded or abruptly or gradually narrowed at base, often slightly divided into short acute lateral lobes and coarsely and irregularly serrate with acute teeth, sparingly villose below, especially on the midrib and primary veins, becoming nearly glabrous in the autumn, dark green on the upper surface, rather paler on the lower surface, 8–10 cm. long and 6–7 cm. wide; petioles stout, densely villose early in the season, becoming glabrous or nearly glabrous, and 8–15 mm. in length. Flowers opening early in June, 2 cm. in diameter, on slender pedicels densely villose like the 6–12-flowered rather compact corymbs; calyx thickly covered with matted pale hairs, the lobes glandular-serrate, nearly glabrous above, densely villose below, deciduous or persistent on the fruit; stamens 20; anthers "pale green fading to blackish"; style surrounded at the base by a conspicuous tuft of white hairs. Fruit ripening early in October, on stout pedicels, in nearly glabrous few-fruited clusters, subglobose to ovoid, crowned by the persistent calyx-tube, orange red, up to 1.5 cm. in diameter; nutlets 2, ellipsoid, often slightly broader at the apex, rounded or slightly ridged on the back, furnished on the inner surface with irregular shallow depressions or occasionally with a short deep pit, 1–1.2 cm. long, 1 cm. wide.

A tree from 5–6 m. tall, with a trunk 3.5 dm. in diameter, a wide head of spreading branches and stout branchlets without spines in the Arbo-retum specimens.

In an upland field of the Page Whitaker farm, Richland County, southeastern Illinois, *Robert Ridgway*, October 7, 1923 (No. 2057, type for fruit), June 2, 1924 (No. 2105, type for flowers). Small trees in an adjoining field are believed by Dr. Ridgway to be seedlings from this tree (Nos. 2057 and 2105) but of these I have seen no specimen.

In habit, spreading branches, stout large branchlets and large leaves it resembles a *Molles* species, while in the shape of the leaves, the size and color of the soft fruit, the two nutlets and the nature of their lower surface it resembles a *Macracanthae* species.

*Crataegus coccinioides* Ashe, a species of the *Dilatatae*, grows in the neighborhood of St. Louis and is common near Allenton and Pacific, Missouri. If *C. speciosa* Sargent (in *Trees and Shrubs*, i. 65 [1903]) is considered a synonym of Ashe's species, as the examination of a large amount of material recently collected by Palmer seems to justify, the range of this species must be extended to southwestern Missouri, Galena, Cherokee County, Kansas, and to the neighborhood of Farmington, Washington County, Arkansas. Ashe includes southern Illinois in the range of his species but I have seen no specimen from east of the Mississippi River.

*Crataegus cupulifera* Sargent (in *Rochester Acad. Sci.* iv. 129 [1903]) was referred to the *Macracanthae* by me in the *New York State Bull.* 167, 119 (1913) but it really belongs to the *Rotundifoliae* group, and *C. simulans* Sargent (in *New York State Bull.* cxxii. 125 [1908]) which was later referred by me to *C. cupulifera* as a synonym, belongs as originally described to the *Anomala*.

*Crataegus Wheeleri*, an *Intricatae* species from Grand Rapids, Michigan, was published by Sargent in 1907 (in *Rep. Geolog. Surv. Michigan*, 1906, 552) and is found to be a homonym, a *C. Wheeleri* from Colorado which probably belongs to *C. Douglasii* having been published in 1902 by Nelson (in *Bot. Gaz.* xxxiv. 369). There is not a specimen of Nelson's plant in the herbarium of the Arboretum. *Crataegus diversifolia*, with broad or narrow ovate leaves of the fruiting branches becoming sometimes distinctly 3-lobed on vigorous sterile shoots, may be adopted as the name of *C. Wheeleri* of Sargent.

*Crataegus padifolia* var. *incarnata*, n. var.

Leaves ovate, acute and short-pointed at the apex, rounded or abruptly narrowed at the base, acutely and frequently doubly serrate, and often slightly divided into short acute lateral lobes, glabrous with the exception of a few caducous hairs on the upper side of the midrib early in the season, thin, dark green above, slightly paler below, 3-5.5 cm. long and 3-5 cm. wide, with a slender midrib deeply impressed on the upper side, and usually 5 or 6 pairs of slender primary veins; petioles slender, more or less glandular, with glands generally persistent during the season, usually about 1.5



cm. in length; stipules oblanceolate, glandular-serrate, caducous. Flowers 1.5 cm. in diameter, in small mostly 5- or 6-flowered corymbs, furnished with broad conspicuously glandular-serrate deciduous bracts; calyx glabrous with narrow acuminate glandular-serrate lobes often persistent on the ripe fruit; stamens 7-10; anthers pale pink; styles 2-4. Fruit ripening in early October, subglobose, dull crimson, punctate, about 1.5 cm. in diameter; nutlets 3-4, rounded on the back and ends, slightly broader at the apex than at the base, 5-6 mm. in length.

Usually a shrub from 4.5-5 m. high, with stout stems covered with dark corky bark, and erect or ascending branches armed with numerous slender straight or slightly curved dark purple spines 4-5 cm. in length; or often a small tree 5-6 m. high.

Rocky limestone hills near Galena, Stone County, Missouri, *E. J. Palmer*, October 13, 1913 (No. 4645, type for fruit), September 27, 1920 (No. 19,183), April 29, 1924 (No. 24,569, type for flowers), all from plant No. 3; same locality, May 23, 1923 (No. 22,798), April 29, 1924 (No. 24,568). Rocky upland woods, near Cotter, in Marion County, Arkansas, *E. J. Palmer*, June 18, 1914 (No. 6026).

The specimens of Mr. Palmer's plant No. 3 can probably best be regarded as a variety of *C. padifolia* of the *Intricatae* group which occurs in this region, and from which it differs in its generally broader and usually slightly lobed leaves and in its larger and softer crimson fruit.

*Crataegus panda* has been used for two different plants, first by Beadle in 1902 (Biltmore Bot. Studies, i. 89) for a shrubby species of the *Flavae* group from the neighborhood of Tallahassee, Florida, and second by Ashe in 1903 for a plant from Glendon, N. Carolina (in Jour. Elisha Mitchell Sci. Soc. xix. 29). The description does not give the group to which this plant belongs and there is not a specimen in the Arboretum herbarium.

*Crataegus cirrata* was used in 1902 by Beadle (Biltmore Bot. Studies, i. 101) for a shrubby species of the *Flavae* group from Girard, Alabama. The same name was used in 1916 by Ashe (in Bull. Charleston Mus. xii. 42) for a plant from Georgia, no information being given of the type locality or of the group to which it belongs. Ashe's plant is not represented in the Arboretum herbarium.

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## SYNOPSIS OF NORTH AMERICAN CRATAEGI

ERNEST J. PALMER

### INTRODUCTION

The following alphabetical list and synoptical tables of the North American species and varieties of the genus *Crataegus* was compiled several years ago, in a somewhat different form, for use in the Herbarium of the Arnold Arboretum. It was not intended for publication and was

designed merely for convenient reference and to facilitate the identification of material. The very unusual size of this genus in number of species, the bulk of material in our herbarium and the large accessions constantly accumulating, as well as specimens and collections frequently being received for identification from various parts of the country became so burdensome, even with the ample library and collection of types available here, that it was thought worth while to bring together in as compact a form as possible a synopsis of the information scattered through many publications and indices. It was hoped also that it might at some future time serve as the basis for a fuller study and more complete key to the genus. It is published with some reluctance at this time in the hope that it may prove of wider use and convenience to students of American *Crataegus*, especially to those who do not have access to much of the original literature or to the collections of the larger herbaria.

It is intended in the index to give a list as complete as possible of the specific and varietal names that have been applied to North American *Crataegi*. Possibly some names have escaped the writer's attention that should have been included, and many of those listed are given only for reference. No attempt is made to give a complete synonymy under valid names nor of combinations under other generic names. Specific names that have been variously interpreted by different botanists are included but once, exception being made in a few cases where it seems evident that duplication occurred through coincidence and that the authors were referring to different plants. Several instances of this sort will be noted, some of which are corrected in a paper by Professor C. S. Sargent appearing in this issue.

As this paper is not intended as a critical study in the sense of a revision of the genus, I have carefully refrained from making new combinations and so far as possible from going into the question of the validity of names that have been published. However, for the sake of clearness it was found necessary to indicate that certain names are recognized synonyms of others and where these have been used both as of specific and varietal rank to designate the preferred form. In such cases the practice prevailing at present in the Herbarium of the Arnold Arboretum has naturally been followed and names regarded as synonyms are printed in italics. A few obvious orthographical errors in previous publication of names have been corrected and for the sake of uniformity the practice of doubling the final *i* after consonants except after the ending "*er*," as recommended in the International Rules of Nomenclature, has been adopted for all names recognized as valid.

The question of synonymy and priority of names in this genus is much complicated by the fact that many North American species were first named from specimens cultivated in European gardens. These names were often without adequate descriptions or figures or with none at all, and in almost all cases without any definite records as to the part of the



country from which the seeds or plants were derived. North America was usually considered sufficiently definite and all of the eastern parts of the continent might be included under the general designations Carolina, Virginia and Canada. These early names were in many cases taken up and variously interpreted by later writers. Some of them, through study of the type specimens where they exist or of the plants still in cultivation have been found to have precedence over later names and more careful study will probably reveal other such cases. It is possible too that duplicate descriptions of some identical plants have been published under different names by later authors working independently.

The species have as far as possible been referred to the natural sections or groups to which they belong, those recognized being the twenty wholly or partially arborescent groups of Sargent's Manual of the Trees of North America and two additional shrubby ones, Uniflorae and Pulcherrimae. Perhaps two or three other small groups should be included in a fuller treatment of the North American species, at least in the writer's opinion. The distinctions between these groups are usually clear but in some cases there is an apparent merging of characters and it is difficult to say to which of two sections certain species belong. Where the group was indicated by the author of the species his treatment has usually been followed when the species comes within the recognized sections, although in a few instances there was some doubt in the writer's mind as to the correctness of the reference. Where the original description does not make the group clear and no specimens were available for examination I have seldom ventured to supply it and such species are necessarily excluded from the synoptical tables. These, with other debatable names that could not definitely be assigned to synonymy and all others of which I have not seen specimens, are indicated by a question mark in parenthesis.

The geographical range is given usually by states and provinces except in the cases of a few widely distributed species where it did not seem necessary to enumerate all political divisions. Where a wider range is indicated than that given in earlier publications it is in all cases based upon specimens examined, most of which are in the Arnold Arboretum Herbarium. In giving type localities, details have sometimes been supplied from the type specimens where these were available.

The synoptical tables were designed merely as a temporary substitute for a more complete key to the genus, the idea being to bring together species having common characters into small groups so that in connection with the geographical range only a few would have to be considered in identifying material. Like ordinary keys they are of course expected to be used only as guides to the fuller descriptions of the manuals.

In these tables the color of the anthers, number of stamens, glabrous or pubescent character of corymbs at flowering time and general shape of

the leaves were adopted for most of the groups, in the order named. This arrangement may not prove entirely satisfactory for a fuller treatment, but these characters were selected after much experimenting for two reasons: First, because they have been clearly stated and emphasized in most of the descriptions of recently proposed species, and second, for the sake of definiteness. It is extremely difficult to find in dealing with a genus like *Crataegus*, in which the number of species is so great and the differences between them in many cases slight, any common character that will hold good throughout a large series. The taxonomic value of characters varies in different groups, but generally there appears to be considerable variability even within the species in such particulars as the size of the flowers, the number in the corymbs and the compactness or laxity of the latter. The shape of the leaves is even less stable and dependable, many types often being found on a single branch; certain sorts of serration characterize some species, but in most there is much variability and differences are only relative; the texture and veining of the leaves is sometimes characteristic, but this is often modified by ecological conditions; the color of foliage, though not without significance, is subject to similar modification. The fruit is often one of the best guides to group distinctions, but there is quite too much variation in such particulars as shape, size and color for them to be depended upon rigidly as specific criteria. The number and shape of the nutlets is rather constant in some groups and quite variable in others; but these differences likewise, though furnishing in a few exceptional cases a distinction between closely allied species, usually serve merely as a guide to the group. Even the presence or absence of pubescence on the corymbs, often one of the best specific distinctions, cannot always be relied upon. In the color of the anthers, if not too narrowly defined, is to be found at least a distinction that is definite and not one of degree. Certain species seem to be characterized by having anthers of the yellow group of shades and others by those of shades that may generally be called red. These differences are often more or less distinctly correlated with the color of the fruit and shade of foliage, especially in its autumnal aspect.

In the number of stamens there is greater variability and they must be taken with less confidence and greater latitude as specific distinctions. As the flowers of this genus are 5-merous these organs normally appear in multiples of five. Thus in certain species, especially in the *Tenuifoliae* group, five appears to be the normal number, and these vary in individual flowers from four to seven or rarely eight. There is a double series in another large array of species in which the number may be expected to vary through suppression or redundancy between eight and twelve or fifteen, although in the great majority of flowers it is actually ten. In many species the series is again doubled and we find twenty stamens or rarely a few more or less. Considerable field observation and study



of specimens in cultivation seems to indicate that these characters, as thus liberally defined, generally breed true in seedlings. Exceptions may be expected in the case of hypothetical hybrids. It would therefore appear that the number of stamens and color of anthers furnish one of the most definite criteria for distinguishing between species, although perhaps conclusive only when combined with other important though variable morphologic characters; and they can scarcely be ignored, especially in the construction of keys, unless we are willing to adopt a much broader conception of a few variable and composite species. This of course involves a controversial question upon which there is the widest latitude for difference of opinion, and which is beyond the province or purpose of this paper. It is perhaps safe to say, however, that no competent student of the genus today would be willing to consider returning to the score or so of species recognized by the botanists of a few decades ago.

A brief synopsis of the fruit characters is given in the tables following the name of each species. These have in almost all cases been taken from the original descriptions and it should be remembered that a considerable deviation from some of these specifications may be expected in individual plants under varying ecological conditions. At least a wide acquaintance with many of the species in the field and observation of specimens under cultivation has led me to this conclusion. In a few cases where it seemed evident that errors had occurred in the original descriptions or where the examination of a series of specimens showed too wide a departure from these descriptions, corrections have been made. The question mark in parenthesis (?) following name of species and author, indicates that specimens have not been seen or that the position of the species in the tables is not definitely determinable from the description drawn upon.

#### ALPHABETICAL LIST OF SPECIES AND VARIETIES WITH SECTION AND RANGE

##### CRATAEGUS

- abbreviata* Sargent in Jour. Arnold Arb. III. 187 (1922).—**Crus-galli**.—Texas (type locality: Brazoria).
- abdtia* Beadle in Biltmore Bot. Studies, I. 75 (1902).—**Flavae**.—Florida (type locality: River Junction).
- abjecta* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 636 (1905).—**Intricatae**.—Pennsylvania (type locality: Sellersville).
- aboriginum* Sargent in Rhodora, v. 163 (1903) = *C. rotundifolia* var. *aboriginum* Sarg.
- abstrusa* Beadle in Biltmore Bot. Studies, I. 66 (1902).—**Pulcherrimae**.—Florida (type locality: Tallahassee).
- accincta* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 154 (1910).—**Crus-galli**.—Pennsylvania (type locality: McKees Rocks).

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- acclivis* Sargent in Proc. Rochester Acad. Sci. iv. 115 (1903).—**Coccineae**.—New York, Pennsylvania (type locality: Rochester, N. Y.).
- acerba* Sargent in N. Y. State Mus. Bull. cxxii. 93 (1908).—**Silvicolae**.—New York (type locality: Coopers Plains).
- acerifolia* Loddiges Cat. 8, ex Moench, Bäume Weiss. 31 (1785) = *C. Phaenopyrum* Medic.
- acuminata* Sargent in N. Y. State Mus. Bull. cv. Bot. ix. 56 (1906).—**Tenuifoliae**.—New York, Pennsylvania, Ohio (type locality: West Albany, N. Y.).
- acutifolia* Sargent in Bot. Gaz. xxxi. 217 (1901).—**Crus-galli**.—Illinois, Missouri, Tennessee, Arkansas (type locality: Carondelet).
- acutiloba* Sargent in Rhodora, iii. 23 (1901).—**Tenuifoliae**.—South-eastern Canada, New England (type locality: Bar Harbor, Me.).
- admiranda* Sargent in N. Y. State Mus. Bull. cxxii. 80 (1908).—**Macracanthae**.—Ontario, New York (type locality: Niagara Falls, N. Y.).
- adunca* Beadle in Biltmore Bot. Studies, i. 87 (1902).—**Flavae**.—Florida (type locality: Tallahassee).
- adusta* Beadle in Biltmore Bot. Studies, i. 110 (1902).—**Flavae**.—Florida (type locality: Gainesville).
- advena* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 175 (1910).—**Pruinosae**.—Pennsylvania (type locality: Bedford).
- aemula* Beadle in Biltmore Bot. Studies, i. 53 (1902).—**Silvicolae**.—Georgia, Mississippi (type locality: Rome, Ga.).
- aestivalis* (Walt.) Torrey & Gray, Fl. N. Am. i. 468 (1840).—**Aestivales**.—North Carolina, South Carolina, Georgia (type locality of *Mespilus aestivalis* Walter not given).
- aestivalis* var. *cerasoides* Sargent in Jour. Arnold Arb. i. 250 (1920).—Florida (type locality: Seville).
- aestivalis* var. *cerasoides* f. *luculenta* Sargent in Jour. Arnold Arb. i. 251 (1920).—Florida (type locality: Volusia County).
- aestivalis* var. *maloides* Sargent in Jour. Arnold Arb. i. 250 (1920).—Florida (type locality: Seville).
- affinis* Sargent in Ontario Nat. Sci. Bull. iv. 71 (1908).—**Anomalae**.—Southeastern Canada, New York (type locality: Toronto, Ont.).
- agaia* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 252 (1910).—**Macracanthae**.—Pennsylvania (type locality: Scranton).
- agrestina* Beadle in Biltmore Bot. Studies, i. 72 (1902).—**Flavae**.—Alabama (type locality: Evergreen).
- alabamensis* Beadle in Bot. Gaz. xxx. 342 (1900).—**Flavae**.—Alabama (type locality: Montgomery).
- alacris* Sargent in Proc. Acad. Nat. Sci. Phila. lvii. 601 (1905).—**Pruinosae**.—Pennsylvania (type locality: Sellersville).
- albanthera* Sargent in Rep. Missouri Bot. Gard. xix. 53 (1908) = *C. arduennae* Sarg.



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- albemarlensis* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. pt. 2, 10 (1901).—Group?—North Carolina (type locality: "Hyde and Pamlico Counties"). (?)
- albicans* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. pt. 2, 20 (1901).—*Silvicolae*.—Michigan (type locality: "eastern Michigan"). (?)
- albicera* Beadle in Biltmore Bot. Studies, i. 132 (1902).—*Crus-galli*.—Louisiana (type locality: Opelousas).
- algens* Beadle in Biltmore Bot. Studies, i. 135 (1902).—*Crus-galli*.—Virginia and North Carolina to Tennessee and Arkansas (type locality: Biltmore, N. Car.).
- aliena* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 157 (1910).—*Crus-galli*.—Pennsylvania (type locality: Orbisonia).
- allecta* Sargent in Rep. Geol. Surv. Mich. 1906, 534 (1907).—*Silvicolae*.—Michigan (type locality: Grand Rapids).
- alleghaniensis* Beadle in Bot. Gaz. xxx. 337 (1900).—*Flavae*.—Alabama, Tennessee (type locality: Lookout Mountain, Ala.).
- alma* Beadle in Biltmore Bot. Studies, i. 64 (1902).—*Intricatae*.—Mississippi (type locality: Meridian).
- alnorum* Sargent in Rhodora, v. 153 (1903).—*Tenuifoliae*.—Maine (type locality: Orono).
- alpestris* Hort. ex K. Koch, Dendr. i. 144 (1869) = *C. crus-galli* var. *pyracanthifolia* Ait.
- alpista* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 238 (1910).—*Intricatae*.—Pennsylvania (type locality: Orbisonia).
- altrix* Ashe in Bot. Gaz. xxxiii. 232 (1902).—Group?—Illinois (type locality: "northern Illinois"). (?)
- amabilis* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 15 (1903).—*Molles*.—Iowa (type locality: Keokuk). (?)
- amara* Ashe in Jour. Elisha Mitchell Sci. Soc. xviii. 22 (1902).—Group?—North Carolina (type locality: Elk Cross Roads). (?)
- ambigens* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 191 (1910).—*Silvicolae*.—Pennsylvania (type locality: Kittanning).
- ambitiosa* Sargent, Trees and Shrubs, ii. 240 (1913).—*Pruinosae*.—Michigan (type locality: Grand Rapids).
- ambrosia* Sargent in N. Y. State Mus. Bull. cv. Bot. ix. 69 (1906).—*Macracanthae*.—Ontario, New York (type locality: Albany, N. Y.).
- amica* Beadle in Biltmore Bot. Studies, i. 97 (1902).—*Flavae*.—Florida (type locality: Ocala).
- amicalis* Sargent, Trees and Shrubs, ii. 238 (1913).—*Virides*.—Arkansas (type locality: Fulton).
- amicta* Ashe in Jour. Elisha Mitchell Sci. Soc. xviii. 26 (1902).—*Coccineae*.—Illinois (type locality: "northern Illinois").
- annicola* Beadle in Biltmore Bot. Studies, i. 55 (1902).—*Punctatae*.—Georgia, Alabama, Tennessee (type locality: Chattanooga, Tenn.).

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- amoena* Sargent in N. Y. State Mus. Bull. cxxii. 38 (1908).—**Pruinosae**.—New York, Ohio (type locality: Niagara Falls, N. Y.).
- ampla* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 615 (September, 1905).—**Tenuifoliae**.—Pennsylvania (type locality: Kutztown).
- ampla* Sargent in Rhodora, VII. 208 (November, 1905) = *C. neofaxonii* Sarg.
- ampliata* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 195 (1910).—**Silvicolae**.—Pennsylvania (type locality: Orbisonia).
- amplifica* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 172 (1910).—**Pruinosae**.—Pennsylvania (type locality: Pittsburgh).
- anamesa* Sargent in Jour. Arnold Arb. III. 189 (1922).—**Virides**.—Texas (type locality: Duke, Ft. Bend County).
- ancisa* Beadle in Biltmore Bot. Studies, I. 63 (1902).—**Pulcherrimae**.—Alabama, Mississippi (type locality, Meridian, Miss.).
- angulata* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 166 (1910).—**Pruinosae**.—Pennsylvania, Ohio, Kentucky (type locality: Nine Mile Run, near Pittsburgh, Pa.).
- angustata* Sargent in Rep. Missouri Bot. Gard. XIX. 77 (1908).—**Punctatae**.—Missouri (type locality: Swan).
- angustifolia* (Medic.) Borkhausen in Roemer, Arch. Bot. I. no. 3, 86 (1798) = *C. crus-galli* var. *pyracanthifolia* Ait.
- angustisepala* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 209 (1910).—**Tenuifoliae**.—Pennsylvania (type locality: Throop, near Scranton).
- anisophylla* Beadle in Biltmore Bot. Studies, I. 99 (1902).—**Flavae**.—Florida (type locality: Jacksonville).
- annosa* Beadle in Biltmore Bot. Studies, I. 83 (1902).—**Flavae**.—Alabama (type locality: Phoenix City).
- anomala* Sargent in Rhodora, III. 74 (1901).—**Molles**.—Southeastern Canada, Vermont, New York (type locality: Caughnawaga, Que.).
- antheina* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 213 (1910).—**Tenuifoliae**.—Pennsylvania (type locality: West Lockport).
- antimima* Sargent in Jour. Arnold Arb. III. 191 (1922).—**Virides**.—Texas, Oklahoma (type locality: Duke, Tex.).
- antiplasta* Sargent in Jour. Arnold Arb. III. 190 (1922).—**Virides**.—Texas (type locality: Duke).
- aperta* Sargent in Rep. Missouri Bot. Gard. XIX. 96 (1908).—**Pruinosae**.—Missouri (type locality: Swan).
- apiifolia* (Marsh.) Michaux, Fl. Bor. Am. I. 287 (1803).—**Microcarpae**.—Virginia to Florida and west to eastern Texas (type region: "Carolina").
- apiifolia* var. *flavanthera* Sargent in Rep. Missouri Bot. Gard. XX. 82 (1912) = *C. spatulata* Michx.
- apiifolia major* Loddiges, Cat. 45 (1836), nomen nudum.—Loudon, Arb. Brit. II. 824 (1838), as synonym of *C. apiifolia* Michx.



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- apiifolia* var. *minor* Loudon, Arb. Brit. II. 825 (1838) = *C. apiifolia* Michx.  
*apiifolia* × *brachyphylla* = *C. notha*.  
*apiomorpha* Sargent in Bot. Gaz. xxxv. 386 (1903).—*Tenuifoliae*.—  
Ohio, Illinois (type locality: Fort Sheridan, Ill.).  
*apposita* Sargent in Bot. Gaz. xxxv. 103 (1903).—*Intricatae*.—Pennsyl-  
vania, Delaware (type locality: Wilmington, Del.).  
*apposita* var. *Bissellii* (Sarg.) Eggleston in Rhodora, x. 76 (1908) = *C.*  
*Bissellii*.  
*aprica* Beadle in Bot. Gaz. xxx. 335 (1900).—*Flavae*.—North Carolina,  
Georgia, Alabama (type locality: Biltmore, N. Car.).  
*aquilonaris* Sargent in Rhodora, v. 185 (1903).—*Macracanthae*.—  
Southeastern Canada (type locality: Nipissing, Ont.).  
*araioclada* Sargent in Jour. Arnold Arb. III. 5 (1922).—*Crus-galli*.—  
Louisiana (type locality: Natchitoches).  
*arborea* Beadle in Biltmore Bot. Studies, I. 137 (1902).—*Crus-galli*.—  
Florida, Alabama (type locality: Montgomery, Ala.).  
*arborescens* Elliot, Sketch Bot. I. 550 (1821).—*Virides*.—Georgia,  
Florida (type locality: Fort Argyle, on Ogeeche River, Ga.).  
*arcana* Beadle in Biltmore Bot. Studies, I. 122 (1902).—*Pruinosae*.—  
New York to North Carolina, west to Michigan and Missouri (type  
locality: Biltmore, N. Car.).  
*arcuata* Ashe in Ann. Carnegie Mus. I. 387 (1902).—*Coccineae*.—  
Pennsylvania, Delaware (type locality: Kutztown, Pa.).  
*ardua* Sargent in Ontario Nat. Sci. Bull. IV. 93 (1908).—*Macracanthae*.—  
Ontario (type locality: Toronto).  
*arduennae* Sargent in Bot. Gaz. xxxv. 377 (1903).—*Crus-galli*.—  
Ontario and New York, west to Michigan, Missouri and Arkansas  
(type locality: Glenellyn, Ill.).  
*arenicola* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. 5 (1900).—  
*Uniflorae*.—North Carolina (type locality: Jessup). (?)  
*arguta* Beadle in Biltmore Bot. Studies, I. 102 (1902).—*Flavae*.—  
Georgia, Alabama (type locality: Girard, Ala.).  
*aridula* Sargent in N. Y. State Mus. Bull. CXXII. 43 (1908).—*Pruinosae*.—  
New York (type locality: Niagara Falls).  
*aristata* Sargent in N. Y. State Mus. Bull. CL. 27 (1911).—*Pruinosae*.—  
New York (type locality: Rossie).  
*arkansana* Sargent in Bot. Gaz. XXXI. 223 (1901).—*Molles*.—Arkansas  
(type locality: cultivated in Arnold Arboretum from seed collected  
at Newport, Ark.).  
*armata* Beadle in Biltmore Bot. Studies, I. 136 (1902).—*Crus-galli*.—  
Alabama, Tennessee (type locality: Nashville, Tenn.).  
*armentalis* Beadle in Biltmore Bot. Studies, I. 117 (1902).—*Uniflorae*.—  
Alabama (type locality: Albertsville).

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- armigera* Sargent in Ontario Nat. Sci. Bull. iv. 87 (1908).—**Macracanthae**.—Southeastern Canada (type locality: Toronto, Ont.).
- arnoldiana* Sargent in Bot. Gaz. xxxi. 221 (1901).—**Molles**.—Massachusetts, Connecticut, New York (type locality: Arnold Arboretum, cultivated).
- arrogans* Beadle in Biltmore Bot. Studies, i. 81 (1902).—**Flavae**.—Georgia, Alabama (type locality: Phoenix City, Ala.).
- arta* Beadle in Biltmore Bot. Studies, i. 130 (1902).—**Crus-galli**.—Tennessee (type locality: Nashville).
- ascendens* Sargent in Rhodora, v. 141 (1903).—**Tenuifoliae**.—Vermont, New York (type locality: New Haven, Vt.).
- Ashei* Beadle in Bot. Gaz. xxx. 339 (1900).—**Bracteatae**.—Alabama, Mississippi (type locality: Montgomery County, Ala.).
- aspera* Sargent, Trees and Shrubs, ii. 67 (1908).—**Pruinosae**.—Missouri (type locality: Webb City).
- asperata* Sargent in Rep. Geol. Surv. Mich. 1906, 542 (1907).—**Tenuifoliae**.—Michigan (type locality: Port Huron).
- asperifolia* Sargent in Rhodora, iii. 31 (1901).—**Anomalae**.—Southeastern Canada, New England, New York (type locality: Middlebury, Vt.).
- assimilis* Beadle in Biltmore Bot. Studies, i. 68 (1902).—**Pulcherrimae**.—Florida (type locality: Chattahoochee).
- assurgens* Sargent in Bot. Gaz. xxxv. 382 (1903).—**Coccineae**.—Ohio, Illinois, Wisconsin (type locality: Glendon Park, near Chicago, Ill.).
- ater* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 21 (1903).—**Pruinosae**.—Michigan, Ohio (type locality: Port Huron, Mich.).
- atropurpurea* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. pt. 2, 12 (1901) = *C. velata* Ashe.
- atrorubens* Ashe in Jour. Elisha Mitchell Sci. Soc. xvi. 78 (1900).—**Virides**.—Illinois, Missouri (type locality: St. Louis County, Mo.).
- attenuata* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 30 (1903).—**Crus-galli**.—Michigan, Illinois (type locality: Port Huron, Mich.).
- attrita* Beadle in Biltmore Bot. Studies, i. 98 (1902).—**Flavae**.—Alabama (type locality: Ozark).
- audens* Beadle in Biltmore Bot. Studies, i. 114 (1902).—**Flavae**.—Florida (type locality: Chattahoochee).
- augusta* Sargent in Proc. Acad. Nat. Sci. Phila. lvii. 597 (1905).—**Pruinosae**.—Pennsylvania (type locality: Kutztown).
- aulica* Sargent in Ontario Nat. Sci. Bull. iv. 48 (1908).—**Coccineae**.—Ontario, New York, Michigan (type locality: Toronto, Ont.).
- aurea* Hort. ex Nicholson in Hand-list Arb. Kew. pt. 1, 209 (1894) as a synonym of *C. punctata* var. *xanthocarpa* = *C. punctata* var. *aurea* Ait.



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- austera* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 586 (1905).—**Pruinosae**.—Pennsylvania (type locality: Sellersville).
- austrina* Beadle in Biltmore Bot. Studies, I. 59 (1902).—**Pulcherrimae**.—Alabama (type locality: Greenville).
- austromontana* Beadle in Bot. Gaz. XXVIII. 412 (1899).—**Triflorae**.—Georgia, Alabama, Tennessee (type locality: Valley Head, Ala.).
- axillaris* (Pers.) Loddiges, Cat. 39 (1826).—Loudon, Arb. Brit. II. 841 (1838) as synonym of *C. parvifolia* Ait.
- baccata* Sargent in Rhodora, VII. 176 (1905).—**Macracanthae**.—Massachusetts (type locality: Lancaster).
- Balkwillii* Sargent in Ontario Nat. Sci. Bull. IV. 80 (1908).—**Macracanthae**.—Ontario, New York (type locality: London, Ont.).
- barbara* Sargent in N. Y. State Mus. Bull. CXXII. 33 (1908).—**Punctatae**.—New York (type locality: Brighton).
- barbata* Sargent in Rep. Missouri Bot. Gard. XIX. 63 (1908).—**Crusgalli**.—Missouri (type locality: Swan).
- Baroussana* Eggleston in Torreya, VII. 35 (1907).—**Molles**.—Mexico (type locality: Saltillo, Coahuila).
- barrettiana* Sargent in Rep. Missouri Bot. Gard. XIX. 50 (1908).—**Crusgalli**.—Ohio, Indiana, Illinois, Missouri (type locality: Barretts Station, Mo.).
- Barryana* Sargent in N. Y. State Mus. Bull. CXXII. 52 (1908).—**Silvicolae**.—New York (type locality: Rochester).
- Bartoniana* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 637 (1905).—**Intricatae**.—Pennsylvania (type locality: Gray's Ferry).
- Bartramiana* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 582 (1905).—**Crusgalli**.—Pennsylvania (type locality: Bartram's Lane, Philadelphia).
- basilica* Beadle in Biltmore Bot. Studies, I. 125 (1902).—**Tenuifoliae**.—North Carolina, South Carolina (type locality: Candler, N. Car.).
- Baxteri* Sargent in Proc. Rochester Acad. Sci. IV. 107 (1903) = *C. foetida* Ashe.
- Beadlei* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 113 (1900).—**Intricatae**.—North Carolina (type locality: Salisbury). (?)
- Bealii* Sargent in Rep. Geol. Surv. Mich. 1906, 553 (1907).—**Intricatae**.—Michigan (type locality: Grand Rapids).
- beata* Sargent in Proc. Rochester Acad. Sci. IV. 97 (1903).—**Pruinosae**.—New York, Pennsylvania (type locality: Rochester, N. Y.).
- beata* var. *compta* (Sarg.) Eggleston in Rhodora, X. 81 (1908) = *C. compta*.
- Beckiana* Sargent in N. Y. State Mus. Bull. CV. 75 (1906).—**Macracanthae**.—New York (type locality: North Greenbush).
- Beckwithae* Sargent in Proc. Rochester Acad. Sci. IV. 124 (1903) = *C. diffusa* Sarg.

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- bedfordensis* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 185 (1910).—**Pruinosae**.—Pennsylvania, Ohio (type locality: Bedford Springs, Pa.).
- bella* Sargent in N. Y. State Mus. Bull. CXXII. 61 (1908).—**Tenuifoliae**.—Ontario, New York, Pennsylvania, Ohio (type locality: Buffalo, N. Y.).
- bellatula* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 171 (1910).—**Pruinosae**.—Pennsylvania (type locality: Bedford).
- bellica* Sargent, Trees and Shrubs, II. 236 (1913).—**Crus-galli**.—Arkansas, Oklahoma, Texas (type locality: Fulton, Ark.).
- bellula* Sargent, Trees and Shrubs I. 111 (1903).—**Pruinosae**.—Massachusetts, Michigan (type locality: Grand Rapids, Mich.).
- benigna* Sargent in Proc. Rochester Acad. Sci. IV. 127 (1903).—**Tenuifoliae**.—New York (type locality: Rochester).
- berberifolia* Torrey & Gray, Fl. N. Am. I. 469 (1840).—**Crus-galli**.—Louisiana (type locality: Opelousas).
- berberifolia* var. *Engelmanni* (Sarg.) Eggleston in Rhodora, X. 76 (1908) = *C. Engelmannii* Sarg.
- Berlandieri* Sargent in Bot. Gaz. XXXI. 230 (1901).—**Molles**.—Texas (type locality: Columbia).
- betulifolia* Loddiges, Cat. 45 (1836).—Loudon, Arb. Brit. II. 841 (1838) as a synonym of *C. parvifolia* Ait.—**Nomen nudum**.
- Bicknellii* Eggleston in Bull. Torrey Bot. Club XXXVIII. 244 (1911).—**Rotundifoliae**.—Massachusetts (type locality: Nantucket Island).
- bicolor* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. pt. 2, 12 (1901).—Group?—North Carolina (type locality: Mitchell County). (?)
- biltmoreana* Beadle in Bot. Gaz. XXVIII. 406 (1899).—**Intricatae**.—Pennsylvania and Virginia to South Carolina, Alabama and Tennessee (type locality: Biltmore, N. Car.).
- Bissellii* Sargent in Rhodora, V. 65 (1903).—**Intricatae**.—Connecticut, New York (type locality: Southington, Ct.).
- bisulcata* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 112 (1900).—**Uniflorae**.—Georgia (type locality: Stone Mountain).
- blairensis* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 193 (1910).—**Silvicolae**.—Pennsylvania, Ohio (type locality: Altoona, Pa.).
- Blanchardii* Sargent in Rhodora, VII. 218 (1905).—**Rotundifoliae**.—Ontario, Vermont (type locality: Wilmington, Vt.).
- blanda* Sargent in Bot. Gaz. XXXIII. 121 (1902).—**Virides**.—Alabama, Louisiana, Arkansas, Texas (type locality: Fulton, Ark.).
- blandita* Sargent in Rhodora, V. 147 (1903).—**Tenuifoliae**.—Quebec (type locality: Caughnawaga).
- bona* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 587 (1905).—**Pruinosae**.—Pennsylvania (type locality: Berks County).



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- Boothiana* Sargent in N. Y. State Mus. Bull. cxxii. 58 (1908).—**Tenuifoliae**.—New York (type locality: Rochester).
- borealis* Ashe in Bull. N. Car. Exper. Sta. clxxv. 111 (1900).—Group?—Michigan (type locality not given). (?)
- Bosciana* Roemer, Fam. Nat. Syn. iii. 119 (1847) = *C. crus-gallii* L.
- Boyntonii* Beadle in Bot. Gaz. xxviii. 409 (1899).—**Intricatae**.—Virginia, North Carolina, Georgia, Alabama, Tennessee (type locality: Biltmore, N. Car.).
- Boyntoni* var. *Buckleyi* (Beadle) Ashe in Jour. Elisha Mitchell Sci. Soc. xxxiv. 139 (1918) = *C. Buckleyi*.
- brachyacantha* Sargent & Engelm. apud Engelm. in Bot. Gaz. vii. 128 (1882).—**Brachyacanthae**.—Arkansas, Louisiana, Texas (type locality not given).
- brachyacantha* f. *leucocarpa* Sargent in Jour. Arnold Arb. iii. 10 (1922).—Louisiana (type locality: Natchitoches).
- brachyacantha* var. *maxima* Kuntze, Rev. Gen. Pl. i. 215 (1891).—Mississippi (type locality: Cairo). (?)
- brachyloba* Sargent in N. Y. State Mus. Bull. cxxii. 75 (1908).—**Anomala**.—New York (type locality: Buffalo).
- brachyphylla* Sargent in Jour. Arnold Arb. iii. 8 (1922).—**Molles**.—Arkansas (type locality: McNab, Hempstead County).
- brachyphylla* × *apiifolia* = *C. notha*.
- brachypoda* Sargent in Rep. Missouri Bot. Gard. xix. 100 (1908).—**Pruinosae**.—Kentucky, Missouri (type locality: Grandin, Mo.).
- bracteata* Sargent in Rep. Missouri Bot. Gard. xix. 91 (1908).—**Pruinosae**.—Missouri, Arkansas, Oklahoma (type locality: Webb City, Mo.).
- Brainerdii* Sargent in Rhodora, iii. 27 (1901).—**Rotundifoliae**.—South-eastern Canada, Vermont (type locality: Middlebury, Vt.).
- Brainerdi* var. *asperifolia* (Sarg.) Eggleston in Rhodora, x. 82 (1908) = *C. asperifolia*.
- Brainerdi* var. *Egglestoni* (Sarg.) Robinson in Rhodora, x. 82 (1908) = *C. Egglestonii*.
- Brainerdi* var. *scabrida* (Sarg.) Eggleston in Rhodora, x. 82 (1908) = *C. scabrida*.
- brazoria* Sargent in Bot. Gaz. xxxi. 233 (1901).—**Punctatae**.—Texas (type locality: Brazoria).
- brevipedicellata* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. 6 (1900).—Group?—North Carolina (type locality: Priest Hill). (?)
- brevipes* Peck in N. Y. State Mus. Bull. cxxxix. 20 (1910).—**Pruinosae**.—New York (type locality: Corning).
- brevispina* Douglas apud Steudel, Nomencl. Bot. ed. 2, i. 432 (1841) = *C. Douglasii* Lindl.

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- bristolensis* Sargent in *Rhodora*, vii. 175 (1905).—**Macracanthae**.—Massachusetts (type locality: Somerset).
- Brittonii* Eggleston in Bull. Torrey Bot. Club, xxxvi. 640 (1909).—**Uniflorae**.—North Carolina, Georgia, Tennessee (type locality: Biltmore, N. Car.).
- Brockwayae* Sargent, *Trees and Shrubs*, ii. 245 (1913).—**Anomalae**.—Michigan (type locality: Clifton).
- bronxensis* Sargent in N. Y. State Mus. Bull. cxxii. 115 (1908).—**Pruinosae**.—New York (type locality: New York Botanical Garden).
- Brownietta* Sargent in N. Y. State Mus. Bull. clxvii. 78 (1913).—**Punctatae**.—New York (type locality: Hemlock Lake, Livingston County).
- Brownii* Britton in Bull. N. Y. Bot. Gard. i. 447 (1900) = *C. Margaretta* var. *Brownii* Sarg.
- brumalis* Ashe in Ann. Carnegie Mus. i. 393 (1902).—**Tenuifoliae**.—Pennsylvania (type locality: Pittsburgh).
- Brunetiana* Sargent in *Rhodora*, v. 164 (1903).—**Rotundifoliae**.—Southeastern Canada (type locality: Montmorency Falls, Que.).
- Buckleyi* Beadle in Biltmore Bot. Studies, i. 25 (1901).—**Intricatae**.—Virginia, North Carolina, Tennessee (type locality: Biltmore, N. Car.).
- Buistii* Hort. ex K. Koch, *Dendr.* i. 144 (1869) = *C. crus-galli* var. *pyracanthifolia* Ait.?
- Burkeana* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 218 (1910).—**Coccineae**.—Pennsylvania (type locality: Pittsburgh).
- Bushii* Sargent in Bot. Gaz. xxxiii. 109 (1902).—**Crus-galli**.—Arkansas, Louisiana, Oklahoma, Texas (type locality: Fulton, Ark.).
- caerulescens* Sargent in Jour. Arnold Arb. iii. 193 (1922).—**Pruinosae**.—Massachusetts (type locality: Arnold Arboretum, transplanted from Orient Heights, Breed's Island, Boston Harbor).
- caesa* Ashe in Jour. Elisha Mitchell Sci. Soc. xviii. 24 (1902).—**Coccineae**.—Michigan (type locality: Port Huron).
- caesariata* Sargent in N. Y. State Mus. Bull. cv. Bot. ix. 64 (1906).—**Rotundifoliae**.—New York (type locality: North Albany).
- calcarigera* Salisbury, Prodr. 357 (1796) = *C. crus-galli* L.
- caliciglabra* Schuette in Proc. Biol. Soc. Washington, xvi. 96 (1903).—**Rotundifoliae**.—Wisconsin (type locality not given).
- calliantha* Sargent in Rep. Missouri Bot. Gard. xix. 93 (1908).—**Pruinosae**.—Missouri (type locality: Pacific).
- callicarpa* Sargent in Rep. Missouri Bot. Gard. xix. 96 (1908).—**Pruinosae**?—Missouri (type locality: Shrewsbury).
- callida* Beadle in Biltmore Bot. Studies, i. 123 (1902).—**Pruinosae**.—Alabama (type locality: Gadsden).



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- callista* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 237 (1910).—**Intricatae**.—Pennsylvania (type locality: Sellersville).
- callosa* Sargent in Acad. Nat. Sci. Phila. LVII. 595 (1905).—**Pruinosae**.—Pennsylvania (type locality: North Heidelberg Township, Berks County).
- calophylla* Sargent in Rep. Missouri Bot. Gard. XXII. 67 (1912).—**Crusgalli**.—Tennessee, Missouri, Arkansas (type locality: Springfield, Mo.).
- calpodendron* (Ehrh.) Medicus, Gesch. Bot. 83 (1793).—**Macracanthae**.—Identity and range uncertain (type region of *Mespilus calpodendron* Ehrhart: "Nordamerika").
- calpodendron* × *punctata* Eggleston in N. Y. State Mus. Bull. CCXLIII-IV. 65 (1923). (?)
- calva* Beadle in Biltmore Bot. Studies, I. 83 (1902).—**Flavae**.—Alabama (type locality: Ozark).
- calvescens* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 159 (1910).—**Punctatae**.—Pennsylvania (type locality: Allegheny).
- Calvinii* Sargent in N. Y. State Mus. Bull. CXXII. 81 (1908).—**Macracanthae**.—New York (type locality: Canandagua).
- campestris* Britton in Bull. N. Y. Bot. Gard. I. 449 (1900) = *C. pertomentosa* Ashe.
- canadensis* Sargent in Rhodora, III. 73 (1901).—**Molles**.—Quebec (type locality: Caughnawaga).
- Canbyi* Sargent in Bot. Gaz. XXXI. 3 (1901).—**Crusgalli**.—Pennsylvania, Delaware, Maryland (type locality: Wilmington, Del.).
- candens* Sargent in Rep. Missouri Bot. Gard. XIX. 55 (1908) = *C. arduennae* Sarg.
- carnosa* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. pt. 2, 14 (1901).—Group?—North Carolina (type locality: Yancy County). (?)
- caroliniana* (Poir.) Persoon, Syn. II. 36 (1806).—**Flavae**.—(Type region: "Carolina"). (?)
- carrollensis* Sargent in Jour. Arnold Arb. III. 204 (1922).—**Macracanthae**.—Arkansas (type locality: Eureka Springs).
- casta* Sargent in N. Y. State Mus. Bull. CV. Bot. IX. 53 (1906).—**Pruinosae**.—New York (type locality: North Greenbush).
- catawbiensis* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. 6 (1900).—Group?—North Carolina (type locality: Round Knob). (?)
- celsa* Sargent in N. Y. State Mus. Bull. CXXII. 31 (1908).—**Punctatae**.—New York (type locality: Niagara Falls).
- cerasifera* Loddiges, Cat. 45 (1836), nomen nudum.—Loudon, Arb. Brit. II. 849 (1838), as a synonym of *C. crusgalli* var. *splendens* Ait.
- cerasina* Sargent in N. Y. State Mus. Bull. CXXII. 29 (1908).—**Crusgalli**.—New York (type locality: Niagara Falls).
- cerasoides* Sargent, Trees and Shrubs, II. 237 (1913) = *C. aestivalis*

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var. *cerasoides* Sarg.

*cernua* Ashe in Jour. Elisha Mitchell Sci. Soc. xviii. 25 (1902).—**Rotundifoliae**.—Wisconsin (type locality: Milwaukee). (?)

*cerronis* Nelson in Bot. Gaz. xxxiv. 370 (1902).—**Douglasianae**.—Colorado, Wyoming (type locality: Cerro Summit, Colo.). (?)

*cestrica* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 596.—**Pruinosae**.—Pennsylvania (type locality: Newtown).

*chadfordiana* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 660 (1905).—**Macracanthae**.—Pennsylvania (type locality: Chadford).

*chAMPLAINensis* Sargent in Rhodora, III. 20 (1901).—**Molles**.—South-eastern Canada, Vermont, New York, Michigan (type locality: Middlebury, Vt.).

*Chapmanii* (Beadle) Ashe in Bot. Gaz. xxviii. 271 (1899).—**Macracanthae**.—North Carolina and Georgia, west to Illinois and Missouri (type locality of *C. tomentosa* var. *Chapmani*: Silver Creek, Floyd County, Ga.).

*Chapmani* var. *Plukenetii* Eggleston in Rhodora, x. 83 (1908) = *C. tomentosa* L.

*chateaugayensis* Sargent in N. Y. State Mus. Bull. cxxii. 121 (1908).—**Rotundifoliae**.—New York (type locality: Chateaugay Lake).

*cherokeeensis* Sargent in Jour. Arnold Arb. III. 1 (1922).—**Crus-galli**.—Texas (type locality: Larissa).

*chippewaensis* Sargent in Ontario Nat. Sci. Bull. IV. 44 (1908).—**Coccineae**.—Ontario (type locality: Chippewa).

*choriophylla* Sargent in Jour. Arnold Arb. III. 201 (1922).—**Uniflorae**.—Florida (type locality: Lake City).

*chrysocarpa* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 110 (1900).—**Rotundifoliae**.—Manitoba, Nebraska, North Dakota, Wyoming, Colorado (type locality: foothills of Cache la Poudre Mountains, Colo.).

*chrysocarpa* var. *Faxonii* (Sarg.) Eggleston in N. Y. State Mus. Bull. CCXLIII-IV. 64 (1923) = *C. Faxonii*.

*chrysocarapa* × *macroserma* Eggleston in N. Y. State Mus. Bull. CCXLII-IV. 64 (1923). (?)

*chrysocarpa* × *punctata* Eggleston in N. Y. State Mus. Bull. CCXLIII-IV. 64 (1923). (?)

*cibaria* Beadle in Biltmore Bot. Studies, I. 120 (1902).—**Molles**.—Tennessee (type locality: Nashville).

*cibilis* Ashe in Bot. Gaz. xxxiii. 232 (1902).—**Molles**.—North Carolina, Tennessee (type locality not given). (?)

*cicur* Ashe in Ann. Carnegie Mus. I. 397 (1902).—**Pruinosae**.—Pennsylvania, North Carolina (type locality not given). (?)

*ciliata* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. 13 (1900).—Group?—North Carolina (type locality: Raleigh). (?)



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- cirrata* Beadle in Biltmore Bot. Studies, I. 101 (1902).—**Flavae**.—Alabama (type locality: Girard).
- cirrata* Ashe in Bull. Charleston Mus. XII. 42 (1916). Group?—Georgia (type locality not given). (?)
- clara* Beadle in Biltmore Bot. Studies, I. 95 (1902).—**Flavae**.—Florida (type locality: Bristol).
- Claytoniana Sargent in N. Y. State Mus. Bull. CXXXII. 120 (1908).—**Tenuifoliae**.—New York (type locality: Clayton).
- Clintoniana Sargent in N. Y. State Mus. Bull. CXXXII. 39 (1908).—**Pruinosae**.—New York, Ohio (type locality: Buffalo, N. Y.).
- coccinata* Sargent in Ontario Nat. Sci. Bull. IV. 63 (1908).—**Rotundifoliae**.—Ontario (type locality: London).
- coccinea* Linnaeus, Spec. 476 (1753), in part = *C. rotundifolia* Moench.
- coccinea* var. *corallina* (Lodd.) Loudon, Arb. Brit. II. 817 (1838) = *C. Phaenopyrum* Medic.
- coccinea* var. *cordata* Lavallée, Icon. Arb. Segrez. 81, t. 23 (1882). (?)
- coccinea* var. *Ellwangeriana* (Sarg.) Eggleston in N. Y. State Mus. Bull. CCXLIII-IV. 64 (1923) = *C. Ellwangeriana*.
- coccinea* a. *flabellata* (Bosc) Dippel, Handb. Laubholzk. III. 435 (1893) = *C. flabellata*.
- coccinea glandulosa* Hort. ex Nicholson in Hand-list Hort. Kew. pt. I. 203 (1894), as a synonym of *C. mollis* Scheele.
- coccinea* var. *indentata* (Lodd.) Loudon, Arb. Brit. II. 817 (1838). (?)
- coccinea Kelmanni* Hort. ex Nicholson in Hand-list Arb. Kew. pt. I. 203 (1894) as a synonym of *C. mollis* Scheele. (?)
- coccinea* γ. *Kihlmanni* Hort. apud Lange, Rev. Gen. Crat. 30 (1897). (?)
- coccinea* var. *macracantha* (Lodd.) Dudley in Bull. Cornell University II. 33 (1886) = *C. macracantha*.
- coccinea maxima* Loddiges, Cat. 39 (1826).—Loudon, Arb. Brit. II. 817 (1838). (?)
- coccinea* ε. *microphylla* Lange, Rev. Gen. Crat. 30 (1897). (?)
- coccinea* ε ? *mollis* Torrey & Gray, Fl. N. Am. I. 465 (1840) = *C. mollis*.
- coccinea* δ. *oligandra* Torrey & Gray, Fl. N. Am. I. 465 (1840). (?)
- coccinea* γ. *populifolia* (Walt.) Torrey & Gray, Fl. N. Am. I. 465 (1840). (?)
- coccinea* d. *pruinosa* (Wendl.) Dippel, Handb. Laubholzk. III. 435 (1893) = *C. pruinosa*.
- coccinea* var. *rotundifolia* (Moench) Sargent in Bot. Gaz. XXXI. 14 (1901) = *C. rotundifolia*.
- coccinea* var. *spinosa* Godefroy ex Loudon, Arb. Brit. II. 817 (1838) as synonym of *C. coccinea* var. *maxima* Lodd.
- coccinea* \* *subvillosa* (Schrud.) Lange, Rev. Gen. Crat. 31 (1897) = *C. submollis* Sarg.

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*coccinea*  $\beta$ . *viridis* (L.) Torrey & Gray, Fl. N. Am. i. 465 (1840) = *C. viridis*.

*coccinea*  $\times$  *macrocarpa* Eggleston in N. Y. State Mus. Bull. CCXLIII-IV. 65 (1923). (?)

*coccinea*  $\times$  *pruinosa* Eggleston in N. Y. State Mus. Bull. CCXLIII-IV. 65 (1923). (?)

*coccinoides* Ashe in Jour. Elisha Mitchell Sci. Soc. xvi. 74 (1900).—**Dilatatae**.—Illinois, Missouri, Arkansas (type region: southern Illinois and eastern Missouri).

*coccinoides* var. *dilatata* (Sarg.) Eggleston in Rhodora, x. 81 (1908) = *C. dilatata*.

*Cocksii* Sargent in Jour. Arnold Arb. i. 248 (1920).—**Crus-galli**.—Louisiana (type locality: Winfield).

*coerulea* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 207 (1910).—**Silvicolae**.—Pennsylvania (type locality: Lincoln Heights, near Scranton).

*cognata* Sargent in Rhodora, v. 58 (1903).—**Pruinosae**.—Southeastern Canada, New England, New York, Pennsylvania and Ohio (type locality: Great Barrington, Mass.).

*Coleae* Sargent, Trees and Shrubs, i. 7 (1902).—**Anomalae**.—Michigan (type locality: Grand Rapids).

*collicola* Ashe in Jour. Elisha Mitchell Sci. Soc. xvi. 75 (1900).—**Crus-galli**.—North Carolina (type locality not given). (?)

*collina* Chapman, Fl. ed. 2, Suppl. 2, 684 (1892).—**Punctatae**.—Virginia and North Carolina to Tennessee (type locality not given).

*collina* var. *Lettermani* (Sarg.) Eggleston in Rhodora, x. 76 (1908) = *C. Lettermanii*.

*collina* var. *sordida* (Sarg.) Eggleston in Rhodora, x. 76 (1908) = *C. sordida*.

*Collinsiana* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 611 (1905).—**Tenuifoliae**.—Pennsylvania (type locality: Sellersville).

*colonica* Beadle in Biltmore Bot. Studies, i. 104 (1902).—**Flavae**.—South Carolina (type locality: Bluffton).

*coloradensis* Nelson in Proc. Biol. Soc. Washington, xvii. 175 (1904).—**Macracanthae**.—Colorado (type locality: Gregory Canyon, near Boulder).

*colorado* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 110 (1900).—**Douglasianae**.—North Dakota and Montana to Nebraska, Colorado and Arizona (type locality: foot-hills of Cache la Poudre Mountains, Colo.).

*coloradoides* Ramaley in Bot. Gaz. XLVI. 383 (1906).—**Macracanthae**.—Colorado (type locality: Pole Canyon, near Boulder). (?)

*colorata* Sargent in Proc. Rochester Acad. Sci. iv. 123 (1903).—**Tenuifoliae**.—Ontario and New York to Michigan and Indiana (type locality: Rochester, N. Y.).



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- columbiana* Howell, Fl. N. W. Am. i. 163 (1898).—**Douglasianae**.—Washington (type locality not given).
- columbiana* Sargent in Bot. Gaz. xxxi. 229 (1901) = *C. quercina* Ashe.
- columbiana* var. *Brunetiana* (Sarg.) Eggleston in Rhodora, x. 79 (1908) = *C. Brunetiana*.
- columbiana* var. *Piperi* (Britton) Eggleston in Rhodora, x. 79 (1908) = *C. Piperi*.
- comans* Sargent in N. Y. State Mus. Bull. cxxii. 112 (1908).—**Macracanthae**.—New York (type locality: Coopers Plains).
- comata* Sargent in Proc. Acad. Nat. Sci. Phila. lvii. 592 (1905).—**Pruinosae**.—Pennsylvania (type locality: Gray's Ferry).
- communis* Beadle in Biltmore Bot. Studies, i. 58 (1902).—**Intricatae**.—West Virginia, Tennessee (type locality: Cowan, Tenn.).
- compacta* Sargent in Rep. Geol. Surv. Mich. 1906, 522 (1907).—**Punctatae**.—Ontario, Michigan (type locality: London, Ont.).
- comparata* Sargent, Trees and Shrubs, ii. 240 (1913).—**Pruinosae**.—Michigan (type locality: Grand Rapids).
- compatalis* Ashe in Bull. Charleston Mus. xii. 43 (1916).—Group?—South Carolina (type locality not given). (?)
- compitalis* Beadle in Biltmore Bot. Studies, i. 93 (1902).—**Flavae**.—Florida (type locality: Gainesville).
- compta* Sargent in Proc. Rochester Acad. Sci. iv. 102 (1903).—**Silvicolae**.—Ontario, New York, Pennsylvania (type locality: Rochester, N. Y.).
- concinna* Beadle in Biltmore Bot. Studies, i. 70 (1902).—**Pulcherrimae**.—Florida (type locality: Bristol).
- condensa* Sargent in Proc. Acad. Nat. Sci. Phila. lvii. 617 (1905).—**Tenuifoliae**.—Pennsylvania (type locality: Sellersville).
- condigna* Beadle in Biltmore Bot. Studies, i. 35 (1901).—**Flavae**.—Florida (type locality: River Junction).
- conferta* Sargent in N. Y. State Mus. Bull. cxxii. 62 (1908).—**Tenuifoliae**.—Ontario, New York (type locality: Buffalo, N. Y.).
- confinis* Sargent in Ontario Nat. Sci. Bull. iv. 50 (1908).—**Coccineae**.—Ontario, New York (type locality: Chippewa, Ont.).
- confragosa* Sargent in Ontario Nat. Sci. Bull. iv. 24 (1908).—**Pruinosae**.—Ontario, Ohio (type locality: Sarnia, Ont.).
- confusa* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 235 (1910).—**Intricatae**.—Pennsylvania (type locality: Allegheny).
- congestiflora* Sargent in N. Y. State Mus. Bull. cxxii. 44 (1908).—**Silvicolae**.—Quebec, New York (type locality: Buffalo, N. Y.).
- conjuncta* Sargent in Rhodora, v. 57 (1903).—**Pruinosae**.—New England and New York to Indiana, Illinois and Arkansas (type locality: Lancaster, Mass.).

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- conjungens* Sargent in Jour. Arnold Arb. III. 200 (1922).—**Triflorae**.—Virginia (type locality: Clifton Forge).
- consanguinea* Beadle in Biltmore Bot. Studies, I. 34 (1901).—**Flavae**.—Florida (type locality: Tallahassee).
- conspecta* Sargent in Ontario Nat. Sci. Bull. IV. 28 (1908).—**Coccineae**.—Ontario, New York (type locality: Chippewa, Ont.).
- conspicua* Sargent in N. Y. State Mus. Bull. CV. Bot. IX. 74 (1906).—**Macracanthae**.—Quebec, Vermont, New York. (type locality: North Albany, N. Y.).
- constans* Beadle in Biltmore Bot. Studies, I. 88 (1902).—**Flavae**.—Mississippi (type locality: Columbus).
- consueta* Sargent in Rep. Missouri Bot. Gard. XIX. 67 (1908).—**Crusgalli**.—Missouri (type locality: Swan).
- contigua* Sargent in Rhodora, V. 115 (1903).—**Coccineae**.—Vermont (type locality: Stockbridge).
- contortifolia* Sargent in N. Y. State Mus. Bull. CV. Bot. IX. 59 (1906).—**Molles**.—New York (type locality: North Albany).
- contortula* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 236 (1910).—**Intricatae**.—Pennsylvania (type locality: Bedford).
- contrita* Beadle in Biltmore Bot. Studies, I. 61 (1902).—**Pulcherrimae**.—Florida, Georgia (type locality: River Junction, Fla.).
- corallina* Hort. ex Persoon, Syn. II. 36 (1807), as a synonym of *C. cordata* = *C. Phaenopyrum* Medic.
- cornellii* Sargent in N. Y. State Mus. Bull. CXXII. 105 (1908).—**Intricatae**.—New York (type locality: Coopers Plains).
- cornifolia* (Poir.) Booth ex Loudon, Arb. Brit. II. 819 (1838), as synonym of *C. pyrifolia* Ait. (?)
- coronata* Hort. ex Lange, Rev. Gen. Crat. 33 (1897), as synonym of *C. intricata* Lange.
- corporea* Sargent in Bot. Gaz. XXXV. 403 (1903).—**Macracanthae**.—Illinois (type locality: Lake Zurich).
- corusca* Sargent in Bot. Gaz. XXXIII. 117 (1902).—**Molles**.—Illinois (type locality: Lake Zurich).
- Coursetiana* Roemer, Fam. Nat. Syn. III. 117 (1847) = *C. crus-galli* L.
- crassa* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. pt. 2, 18 (1901).—**Flavae**.—Eastern Pennsylvania (type locality not given). (?)
- crassifolia* Sargent in Ontario Nat. Sci. Bull. IV. 60 (1908).—**Rotundifoliae**.—Ontario (type locality: London).
- Crawfordiana* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 169 (1910).—**Pruinosae**.—Pennsylvania (type locality: Linesville).
- Craytonii* Beadle in Biltmore Bot. Studies, I. 121 (1902).—**Intricatae**.—North Carolina (type locality: Marshall). (?)
- cristata* Ashe in Ann. Carnegie Mus. I. 392 (1902).—**Coccineae**.—Pennsylvania, Ohio (type locality: Pittsburgh, Pa.).



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- crocata* Ashe in Ann. Carnegie Mus. i. 389 (1902) = *C. punctata* var. *aurea* Ait.
- crocea* Beadle in Biltmore Bot. Studies, i. 113 (1902).—**Flavae**.—Florida (type locality: Citra).
- crocina* Beadle in Biltmore Bot. Studies, i. 132 (1902).—**Crus-galli**.—Louisiana (type locality: Opelousas).
- Croomiana* Sargent in Jour. Arnold Arb. iii. 202 (1922).—**Uniflorae**.—Florida (type locality: Tallahassee).
- cruda* Sargent in N. Y. State Mus. Bull. cxxii. 54 (1908).—**Silvicolae**.—New York (type locality: Niagara Falls).
- crudelis* Sargent in Rhodora, v. 143 (1903).—**Tenuifoliae**.—South-eastern Canada (type locality: Montmorency Falls, Que.).
- cruenta* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. pt. 2, 16 (1901).—Group?—North Carolina (type locality: between Sprucepine and Micaville). (?)
- crus-galli* Linnaeus, Spec. 476 (1753).—**Crus-galli**.—Southeastern Canada and New England to North Carolina, west to Alabama, Tennessee, Illinois and Missouri (type region: "Virginia").
- crus-galli angustifolia* (Ehrh.) Sudworth in Bull. U. S. Dept. Agric. Div. For. xiv. 217 (1897) = *C. crus-galli* var. *pyracanthifolia* Ait.
- crus-galli* var. *arbutifolia* Hort. ex Nicholson in Hand-list Arb. Kew, pt. 1, 197 (1894), nomen nudum. (?)
- crus-galli* var. *attenuata* (Ashe) Farwell in Rep. Michigan Acad. Sci. xx. 181 (1918) = *C. attenuata*.
- crus-galli* var. *berberifolia* (Torr. & Gray) Sargent in Gard. & For. ii. 124 (1889) = *C. berberifolia*.
- crus-galli* var. *capillata* Sargent in Bot. Gaz. xxxv. 100 (1903).—Delaware (type locality: Wilmington).
- crus-galli* var. *exigua* (Sarg.) Eggleston in Rhodora, x. 75 (1908).—Connecticut (type locality of *C. exigua* Sarg.: Waterford).
- crus-galli* var. *Fontanesiana* (Spach) Wenzig in Linnaea, xxxviii. 141 (1874) = *C. Fontanesiana*.
- crus-galli* ζ. *inermis* Lange, Rev. Gen. Crat. 62 (1897). (?)
- crus-galli* γ. *lancifolia* (Wend.) Lange, Rev. Gen. Crat. 62 (1897) = *C. crus-galli* var. *pyracanthifolia* Ait.
- crus-galli* β. *laurifolia* (Medic.) Lange, Rev. Gen. Crat. 61 (1897). (?)
- crus-galli* δ. *linearis* (Pers.) De Candolle, Prodr. ii. 626 (1825) = *C. crus-galli* var. *pyracanthifolia* Ait.
- crus-galli* var. *nana* (Dum.) Loudon, Arb. Brit. ii. 821 (1838). = *C. crus-galli* var. *pyracanthifolia* Ait.
- crus-galli* var. *oblongata* Sargent in Bot. Gaz. xxxv. 99 (1903).—Pennsylvania, Delaware (type locality: Edgemoore, Del.).
- crus-galli* var. *ovalifolia* (Hornem.) Lindley, in Bot. Reg. xxii. t. 1860, (1836) = *C. prunifolia* Pers.

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- crus-galli prunellifolia* (Poir.) Sudworth, Bull. U. S. Dept. Agr. Div. For. XIV. 216 (1897). (?)
- crus-galli* *ε. prunifolia* (Marsh.) London, Arb. Brit. II. 821, 849 (1838). = *C. prunifolia*.
- crus-galli* var. *pyracanthifolia* Aiton, Hort. Kew. II. 170 (1789).—Pennsylvania to Florida and west to Indiana and Tennessee.
- crus-galli* var. *rubens* Sargent in N. Y. State Mus. Bull. CLXVII. 75 (1913).—New York (type locality, Chapinville).
- crus-galli* var. *salicifolia* (Medic.) Aiton, Hort. Kew II. 170 (1789) = *C. crus-galli* var. *pyracanthifolia* Ait. ?
- crus-galli* var. *splendens* Aiton, Hort. Kew. ed. 2, III. 202 (1811). (?)
- crus-galli* × *macracantha* Schneider, Ill. Handb. Laubh. II. 1007 (1912). (?)
- crus-galli* × *pentagyna* Schneider, Ill. Handb. Laubh. I. 778 (1906). (?)
- crus-galli* × *prunifolia* Koehne, Deutsche Dendr. 233 (1893). (?)
- crus-galli* × *punctata* Koehne, Deutsche Dendr. 233 (1893). (?)
- crus-galli* × *succulenta* Eggleston in N. Y. State Mus. Bull. CCXLIII-IV. 63 (1923). (?)
- crux* Ashe in Jour. Elisha Mitchell Sci. Soc. XVIII. 17 (1902).—**Macracanthae**.—North Carolina (type locality: along New River, Ashe County).
- cullasagensis* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. 10 (1900).—**Flavae**.—North Carolina (type locality: along Cullasagee River, Macon County). (?)
- culta* Sargent in Rhodora, VII. 199 (1905).—**Tenuifoliae**.—Massachusetts (type locality: Shirley).
- cuneifolia* (Ehrh.) Borckhausen in Roemer, Arch. Bot. 1. no. 3, 86 (1798). Group?—Range and type region of *Mespilus cuneifolia* Ehrh.: "Nordamerika." (?)
- cuneiformis* (Marsh.) Eggleston in Britton & Brown, Ill. Fl. ed. 2, II. 299 (1913).—**Punctatae**.—"Western New York and Pennsylvania to southwest Virginia, west to central Illinois" (type locality of *Mespilus cuneiformis* Marsh. not given). (?)
- cuprea* Sargent in Bot. Gaz. XXXV. 105 (1903).—**Intricatae**.—Delaware (type locality: Wilmington).
- cupulifera* Sargent in Proc. Rochester Acad. Sci. IV. 129 (1903).—**Rotundifoliae**.—New York (type locality: Rochester).
- curabilis* Ashe in Bull. Charleston Mus. XII. 43 (1916).—Group?—South Carolina (type locality: "lower edge of the Piedmont"). (?)
- Curtisii* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 109 (1900).—Group?—North Carolina (type locality: Person County). (?)
- curva* Beadle in Biltmore Bot. Studies, I. 109 (1902).—**Flavae**.—Florida (type locality: Jacksonville).
- Cuthbertii* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. 15 (1900).—Group?—North Carolina (type locality: Bladen County). (?)



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- cyanophylla* Sargent in Bot. Gaz. xxxv. 387 (1903).—**Tenuifoliae**.—Illinois, Wisconsin (type locality: Glendon Park, near Chicago, Ill.).
- cyclophylla* Sargent in Rhodora, vii. 210 (1905).—**Anomalae**.—Vermont (type locality: New Haven).
- Cydonia* Gruber in Bull. Torrey Bot. Club, xxxii. 390 (1905).—**Punctatae**.—Pennsylvania (type locality: Kutztown). (?)
- dacrioides* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 224 (1910).—**Rotundifoliae**.—Pennsylvania (type locality: Orbisonia).
- dallasiana* Sargent, Trees and Shrubs, i. 59 (1903).—**Punctatae**.—Texas (type locality: Dallas).
- Damei* Sargent in Rhodora, vii. 200 (1905).—**Tenuifoliae**.—Massachusetts (type locality: Lowell).
- dapsilis* Beadle in Biltmore Bot. Studies, i. 89 (1902).—**Flavae**.—Florida (type locality: Lane Park, near Tavares).
- Darlingtoniana* Sargent in Proc. Acad. Nat. Sci. Phila. lvii. 653 (1905).—**Intricatae**.—Pennsylvania (type locality: Serpentine Ridge, near West Chester).
- dasyphylla* Sargent in Rep. Missouri Bot. Gard. xxii. 80 (1912).—**Molles**.—Missouri, Kansas, Oklahoma (type locality: Joplin, Mo.).
- Davisii* Sargent in Rep. Missouri Bot. Gard. xxii. 77 (1912) = *C. viridis* L.
- Dawsoniana* Sargent in Rep. Missouri Bot. Gard. xix. 88 (1908).—**Virides**.—Illinois, Missouri (type locality: Arnold Arboretum, cultivated from seed collected near St. Louis, Mo.).
- Dayana* Sargent in N. Y. State Mus. Bull. cxxii. 66 (1908).—**Coccineae**.—New York (type locality: Buffalo).
- debilis* Sargent in Ontario Nat. Sci. Bull. iv. 86 (1908).—**Macracanthae**.—Ontario (type locality: London).
- decens* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 19 (1903).—**Tenuifoliae**.—Ohio (type locality: Mansfield). (?)
- declivitatis* Sargent in Rep. Missouri Bot. Gard. xix. 103 (1908).—**Molles**.—Illinois, Missouri (type locality: St. Louis, Mo.).
- decora* Ashe in Jour. Elisha Mitchell Sci. Soc. xviii. 17 (1902).—Group?—North Carolina (type locality: Elk Cross Roads). (?)
- decorata* Sargent in Rep. Missouri Bot. Gard. xix. 94 (1908).—**Prunifoliae**.—Missouri (type locality: Swan).
- deducta* Sargent in Proc. Acad. Nat. Sci. Phila. lvii. 602 (1905).—**Pruinosae**.—Pennsylvania (type locality: Sellersville).
- definita* Sargent in Proc. Acad. Nat. Sci. Phila. lvii. 647 (1905).—**Intricatae**.—Pennsylvania (type locality: Newtown).
- delawarensis* Sargent in Bot. Gaz. xxxv. 102 (1903).—**Pruinosae**.—Delaware (type locality: between Newport and Newcastle).

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- delecta* Sargent, Man. Trees N. Am. 451 (1905).—**Coccineae**.—Illinois (type locality: Lockport).
- delectabilis* Sargent in Ontario Nat. Sci. Bull. iv. 90 (1908).—**Macracanthae**.—Ontario (type locality: Toronto).
- delectata* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 200 (1910).—**Silvicolae**.—Pennsylvania (type locality: Keyser Valley, near Scranton).
- delicata* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 606 (1905).—**Silvicolae**.—Pennsylvania (type locality: Sellersville).
- Delosii* Sargent in Ontario Nat. Sci. Bull. iv. 56 (1908).—**Intricatae**.—Ontario (type locality: Toronto).
- deltoides* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. pt. 2, 19 (1901).—**Pruinosae**.—New York, Pennsylvania, Maryland (type locality not given).
- delucida* Sargent in Rhodora, v. 139 (1903).—**Tenuifoliae**.—New England, New York (type locality: East Rutland, Vt.).
- demissa* Sargent in Rhodora, v. 139 (1903).—**Tenuifoliae**.—New England to New York and Ohio (type locality: Lenox, Mass.).
- denaria* Beadle in Biltmore Bot. Studies, I. 131 (1902).—**Crus-galli**.—Mississippi (type locality: Columbus).
- densiflora* Sargent in Rhodora, III. 75 (1901).—**Coccineae**.—Quebec (type locality: Rockfield).
- dentata* Loddiges, Cat. 45 (1836), nomen nudum.—Loudon, Arb. Brit. II. 849 (1838), as a synonym of *C. Crus-galli* var. *ovalifolia* Lindl.
- denudata* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 173 (1910).—**Pruinosae**.—Pennsylvania (type locality: Schenley Park, Pittsburgh).
- depilis* Sargent, Man. Trees N. Am. 419 (1905).—**Tenuifoliae**.—Illinois (type locality: Glendon Park, near Chicago.).
- depressa* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. pt. 2, 8 (1901).—**Pruinosae**.—Northern Missouri (type locality not given).
- desertorum* Sargent in Jour. Arnold Arb. III. 187 (1922).—**Virides**.—Texas (type locality: Uvalde).
- desueta* Sargent in N. Y. State Mus. Bull. cxxii. 84 (1908).—**Punctatae**.—New York (type locality: Coopers Plains).
- Deweyana* Sargent in Proc. Rochester Acad. Sci. iv. 133 (1903).—**Macracanthae**.—New York (type locality: Rochester).
- Dewingii* Sargent in N. Y. State Mus. Bull. cxxii. 34 (1908).—**Punctatae**.—New York (type locality: Belfast).
- diaphora* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 251 (1910).—**Macracanthae**.—Pennsylvania (type locality: Keyser Valley, near Scranton).
- diffusa* Sargent in Proc. Rochester Acad. Sci. iv. 103 (1903).—**Silvicolae**.—New England, New York (type locality: Rochester, N. Y.).

## CRATAEGUS

- digna* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 628 (1905).—**Molles**.—Pennsylvania (type locality: Kutztown).
- dilatata* Sargent in Bot. Gaz. XXXI. 9 (1901).—**Dilatatae**.—Quebec and New England to Ohio and Kentucky (type locality: eastern Massachusetts).
- discolor* Sargent in Rep. Missouri Bot. Gard. XIX. 44 (1908).—**Crusgalli**.—Missouri, Arkansas (type locality: Grandin, Mo.).
- disjuncta* Sargent, Trees and Shrubs, I. 109 (1903).—**Pruinosae**.—Missouri, Arkansas (type locality: Monteer, Mo.).
- dispar* Beadle in Biltmore Bot. Studies, I. 28 (1901).—**Flavae**.—South Carolina, Georgia (type locality: Aiken, S. Car.).
- disperma* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. 14 (1900).—Group?—New York and Pennsylvania, west to Illinois (type locality: Wilkesbarre Mountain, Pa.). (?)
- dispressa* Ashe in Jour. Elisha Mitchell Sci. Soc. XIX. 17 (1903).—**Molles**.—Missouri (type locality of *C. pyriformis* Britton, which this name replaces: Monteer).
- dissimilis* Sargent in Rhodora, v. 149 (1903).—**Tenuifoliae**.—Connecticut (type locality: East Lyme).
- dissociabilis* Sargent in N. Y. State Mus. Bull. CXXII. 95 (1908).—**Silvicolae**.—New York (type locality: Coopers Plains).
- dissona* Sargent in Rhodora, v. 60 (1903).—**Silvicolae**.—Ontario and New England, west to northern Illinois and Wisconsin (type locality: Great Barrington, Mass.).
- divergens* (Peck) Sargent in N. Y. State Mus. Bull. cv. Bot. IX. 66 (1906).—**Rotundifoliae**.—New York (type locality: North Greenbush).
- diversa* Sargent in N. Y. State Mus. Bull. CXXII. 109 (1908).—**Macracanthae**.—New York (type locality: Coopers Plains).
- diversifolia* Sargent in Jour. Arnold Arb. VI. 4 (1925).—**Intricatae**.—Michigan (type locality of *C. Wheeleri* Sarg. which this name replaces: Grand Rapids).
- divida* Sargent in Bot. Gaz. XXXV. 401 (1903).—**Macracanthae**.—Illinois (type locality: Barrington).
- divisifolia* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 179 (1910).—**Pruinosae**.—Pennsylvania, Ohio (type locality: Kutztown, Pa.).
- Doddsii* Ramaley in Bot. Gaz. XLVI. 381 (1908).—Colorado (type locality: Pole Canyon, near Boulder). (?)
- Dodgei* Ashe in Jour. Elisha Mitchell Sci. Soc. XIX. 26 (1903).—**Rotundifoliae**.—Southeastern Canada and New England, west to Michigan, Wisconsin and Indiana (type locality: Port Huron, Mich.).
- Dodgei* var. *lumaria* (Ashe) Sargent in Rep. Geol. Surv. Mich. 1906, 556 (1907).—Michigan (type locality: Port Huron).



## CRATAEGUS

- dolosa* Beadle in Biltmore Bot. Studies, I. 90 (1902).—**Flavae**.—Alabama (type locality: Abbeville).
- Douglasii* Lindley in Bot. Reg. XXI. t. 1810 (1835).—**Douglasianae**.—British Columbia to California, east to Idaho, Montana and Wyoming (type locality: Garden of London Horticultural Society, from seed collected along lower Colorado River).
- Douglasii* f. *badia* Sargent in Bot. Gaz. XLIV. 65 (1907).—British Columbia, Washington (type locality: Union Flat, near Pullman, Wash.).
- Douglasii* var. *rivularis* (Nutt.) Sargent in Gard. & For. II. 401 (1889) = *C. rivularis*.
- Douglasii* var. *Suksdorfii* Sargent in Bot. Gaz. XLIV. 65 (1907).—Washington (type locality: western Klickitat County).
- Downingii* Hort. ex Nicholson in Hand-list Arb. Kew, pt. I. 209 (1894), as synonym of *C. tomentosa* (?).
- drymophila* Sargent in Jour. Arnold Arb. I. (1920), as “*drymopila*”.—**Silvicolae**.—Georgia, Alabama, Mississippi (type locality of *C. silvicola* Beadle, which this name replaces: Gadsden, Ala.).
- dumetosa* Sargent in Rep. Missouri Bot. Gard. XIX. 109 (1908).—**Molles**.—Missouri (type locality: Neck City).
- dumicola* Sargent in Rhodora, v. 183 (1903).—**Macracanthae**.—Quebec, New England (type locality: Fort Fairfield, Me.).
- Dunbari* Sargent in Proc. Rochester Acad. Sci. IV. 126 (1903).—**Anomalae**.—New York (type locality: Rochester).
- dunmorensis* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 174 (1910).—**Pruinosae**.—Pennsylvania (type locality: Dunmore).
- duracina* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 186 (1910).—**Pruinosae**.—Pennsylvania (type locality: Whisky Hollow, near Kittanning).
- durifolia* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. 12 (1900).—**Virides**.—Illinois, Missouri (type locality “Missouri”). (?)
- durobrivensis* Sargent, Trees and Shrubs, I. 3 (1902).—**Dilatatae**.—New York (type locality: Rochester).
- Eamesii* Sargent, Manual Trees N. Am. 454 (1905).—**Coccineae**.—Connecticut (type locality: Stratford).
- Earlei* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 112 (1900).—**Uniflorae**.—Florida, Alabama (type locality: Cullman County, Ala.).
- Eastmaniana* Sargent in N. Y. State Mus. Bull. CLXVII. 77 (1913).—**Punctatae**.—New York (type locality: Durand-Eastman Park, Rochester).
- Eatoniana* Sargent in N. Y. State Mus. Bull. 105, Bot. IX. 51 (1906).—**Punctatae**.—New York (type locality: Menands golf grounds, near Albany).
- ebracteata* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 109 (1900).—Group?—North Carolina (type locality: Winston). (?)

## CRATAEGUS

- eburnea* Ashe in Ann. Carnegie Mus. i. 395 (1902).—**Crus-galli**.—Pennsylvania and Virginia to Ohio and Tennessee (type locality not given).
- edita* Sargent in Bot. Gaz. xxxiii. 110 (1902).—**Crus-galli**.—Louisiana, Texas (type locality: Marshall, Tex.).
- Edsoni* Sargent in Rhodora, vii. 205 (1905).—**Tenuifoliae**.—New England, New York (type locality: Burlington, Vt.).
- edulis* Loddiges, Cat. 39 (1826), nomen nudum.—Loudon, Arb. Brit. ii. 818 (1838), as synonym of *C. punctata* var. *aurea* Ait.
- edura* Beadle in Biltmore Bot. Studies, i. 128 (1902).—**Crus-galli**.—Louisiana (type locality: Opelousas).
- edurescens* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 180 (1910).—**Pruinosae**.—Pennsylvania (type locality: Edgemont Township, Delaware County).
- effera* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 206 (1910).—**Silvicolae**.—Pennsylvania (type locality: Scranton).
- efferata* Sargent in N. Y. State Mus. Bull. cxxii. 128 (1908).—**Macracanthae**.—New York (type locality: Hemlock Lake).
- efferta* Sargent in Rep. Missouri Bot. Gard. xix. 51 (1908).—**Crus-galli**.—Missouri (type locality, Pacific).
- effulgens* Sargent in Rep. Missouri Bot. Gard. xxii. 71 (1912).—**Crus-galli**.—Illinois, Tennessee, Missouri (type locality: Springfield, Mo.).
- Eganii* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. 15 (1900).—**Tenuifoliae**.—Illinois (type locality "northern Illinois").
- egens* Beadle in Biltmore Bot. Studies, i. 85 (1902).—**Flavae**.—Florida (type locality: Bristol).
- Eggertii* Britton in Bull. N. Y. Bot. Gard. i. 447 (1900) = *C. coccinoides* Ashe.
- Egglestonii* Sargent in Rhodora, iii. 30 (1901).—**Anomalae**.—New Hampshire, Vermont, Massachusetts (type locality: Bald Mountain, Shrewsbury, Vt.).
- egregia* Beadle in Biltmore Bot. Studies, i. 82 (1902).—**Flavae**.—Florida (type locality: Bristol).
- elliptica* Aiton, Hort. Kew, ii. 168 (1789).—**Flavae**. (?)
- elliptica* Elliot, Sketch, i. 549 (1821) = *C. aestivalis* T. & G.
- ellipticifolia* Sargent in Jour. Arnold Arb. iii. 194 (1923).—**Pruinosae**.—Ohio (type locality: Delaware).
- Ellwangeriana* Sargent in Bot. Gaz. xxxiii. 118 (1902).—**Molles**.—Ontario, New York, Pennsylvania, Michigan (type locality: Rochester, N. Y.).

\* I have seen only cultivated specimens of this plant, in which the principal distinction from *C. flava* appears to be in its 8-10 stamens and pale yellow anthers. Since the origin of the type cultivated in England is not definitely known the geographical range can not be given.

## CRATAEGUS

- elongata* Sargent in Bot. Gaz. xxxv. 380 (1903).—**Coccineae**.—Illinois, Wisconsin (type locality: Deerfield, Ill.).
- Emersoniana* Sargent in Rhodora, vii. 181 (1905).—**Macracanthae**.—Massachusetts (type locality: Somerset).
- Engelmannii* Sargent in Bot. Gaz. xxxi. 2 (1901).—**Crus-galli**.—Southern Illinois and Kentucky to Missouri and Arkansas (type locality: Allenton, Mo.).
- ensifera* Sargent in Rep. Missouri Bot. Gard. xix. 124 (1908).—**Macracanthae**.—Missouri (type locality: Swan).
- enucleata* Sargent, Trees and Shrubs, ii. 239 (1913).—**Virides**.—Arkansas (type locality: Fulton).
- erecta* Sargent in Bot. Gaz. xxxi. 218 (1901).—**Crus-galli**.—Indiana and Illinois to Missouri and Arkansas (type locality: East St. Louis, Ill.).
- errata* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 245 (1910).—**Anomalae**.—Pennsylvania (type locality: Keyser Valley, near Scranton).
- erubescens* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 178 (1910).—**Pruinosae**.—Pennsylvania (type locality: Kittanning).
- erythrocarpa* Ashe in Bull. N. Car. Exper. Sta. clxxv. 109 (1900).—Group?—North Carolina (type locality: Raleigh). (?)
- erythropoda* Ashe in Bull. N. Car. Exper. Sta. clxxv. 113 (1900).—**Douglasianae**.—Colorado to Washington (type locality: foot-hills of Cache la Poudre Mountains, northern Colo.).
- Evansiana* Sargent in Proc. Acad. Nat. Sci. Phila. lvii. 633 (1905).—**Rotundifoliae**.—Pennsylvania (type locality: West Fairmount Park, Philadelphia).
- exclusa* Sargent in Rhodora, v. 108 (1903).—**Molles**.—Vermont, New York, Ohio (type locality: Bald Mountain, Clarendon and Shrewsbury, Vt.).
- exigua* Sargent in Rhodora, v. 52 (1903) = *C. crus-galli* var. *exigua*.
- exigua* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 20 (1903).—**Tenuifoliae**.—Wisconsin (type locality: Milwaukee). (?)
- exilis* Beadle in Biltmore Bot. Studies, i. 76 (1902).—**Flavae**.—Georgia (type locality: Albany).
- eximia* Beadle in Biltmore Bot. Studies, i. 62 (1902).—**Intricatae**.—Alabama (type locality: Sand Mountain, near Pisgah).
- exornata* Sargent in Ontario Nat. Sci. Bull. iv. 31 (1908).—**Pruinosae**.—Ontario, New York (type locality: Chippewa, Ont.).
- extraria* Beadle in Biltmore Bot. Studies, i. 73 (1902).—**Flavae**.—Georgia (type locality: Marietta).
- fallax* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 11 (1903).—**Macracanthae**.—Michigan (type locality: Port Huron). (?)
- fallsiana* Sargent in N. Y. State Mus. Bull. clxvii. 113 (1913).—**Anomalae**.—New York (type locality: Little Falls).



## CRATAEGUS

- Farwellii* Sargent in Rep. Geol. Surv. Mich. 1906, 519 (1907).—**Crus-galli**.—Michigan (type locality: Bell Island, Detroit).
- fastosa* Sargent, Trees and Shrubs, I. 61 (1903).—**Punctatae**.—Arkansas (type locality: Fulton).
- Faxonii* Sargent in Rhodora, v. 161 (1903).—**Rotundifoliae**.—New Hampshire (type locality: Franconia).
- fecunda* Sargent in Bot. Gaz. xxxiii. 111 (1902).—**Crus-galli**.—Southern Illinois, Missouri (type locality: Arnold Arboretum from seed collected near Allenton, Mo.).
- felix* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 589 (1905).—**Silvicolae**.—Pennsylvania (type locality: Reading).
- fera* Beadle in Biltmore Bot. Studies, I. 128 (1902).—**Crus-galli**.—Louisiana (type locality: Opelousas).
- ferentaria* Sargent in Proc. Rochester Acad. Sci. IV. 135 (1903).—**Macracanthae**.—Southeastern Canada, New England, New York (type locality: Rochester, N. Y.).
- Fernaldii* Sargent in Rhodora, v. 166 (1903).—**Rotundifoliae**.—Maine (type locality: Fort Fairfield and Fort Kent, Aroostook County).
- ferox* Sargent in Rep. Missouri Bot. Gard. XIX. 52 (1908) = *C. arduennae* Sarg.
- Ferrissii* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. pt. 2, 11 (1901).—**Pruinosae**.—Illinois (type locality: "northern Illinois").
- ferta* Sargent in Ontario Nat. Sci. Bull. IV. 77 (1908).—**Macracanthae**.—Ontario (type locality: Toronto).
- fertilis* Sargent in Rhodora, v. 182 (1903).—**Macracanthae**.—Southeastern Canada, New England (type locality: Orono, Me.).
- festiva* Sargent in Rhodora, v. 54 (1903).—**Pruinosae**.—Connecticut (type locality: East Lyme).
- filipes* Ashe in Jour. Elisha Mitchell Sci. Soc. XIX. 18 (1903).—**Silvicolae**.—Michigan (type locality: Port Huron).
- finitima* Sargent in N. Y. State Mus. Bull. CXXII. 78 (1908).—**Macracanthae**.—New York (type locality: Niagara Falls).
- firma* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 612 (1905).—**Tenuifoliae**.—Pennsylvania (type locality: Sellersburg).
- flabellata* (Bosc) K. Koch in Verh. Ver. Beförd. Gartenb. Preuss. ser. 2, I. 240 (Weissd. 20) (1853).—**Tenuifoliae**.—Southeastern Canada, New England and New York, west to northern Illinois (type locality of *Mespilus flabellata* Bosc: cultivated in Jardin des Plantes, Paris, from unknown source).
- flagrans* Sargent in N. Y. State Mus. Bull. CV. Bot. IX. 71 (1906).—**Macracanthae**.—New York (type locality: North Greenbush).
- flammata* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 211 (1910).—**Tenuifoliae**.—Pennsylvania (type locality: Birdseye, near Scranton).

## CRATAEGUS

- flammea* Sargent in Rep. Geol. Surv. Mich. 1906, 563 (1907).—**Macracanthae**.—Ontario, Michigan (type locality: Sarnia, Ont.).
- flava* Aiton, Hort. Kew. II. 169 (1789).—**Flavae**.—Georgia, Florida (type locality: cultivated in Royal Botanical Gardens, Kew. "Native of North America").
- flava* var. *elliptica* (Ait.) Sargent, Silva N. Am. IV. 114 (1892) = *C. elliptica*.
- flava* var. *integra* Nash in Bull. Torrey Bot. Club. XXII. 150 (1895) = *C. integra*.
- flava* var. *lobata* (Bosc) Lindley in Bot. Reg. XXIII. t. 1932 (1837) = *C. elliptica* Ait.
- flava* var. *pubescens* Gray, Man. ed. 2, 124 (1856). (?)
- flavens* Loddiges, Cat. 46 (1836), nomen nudum.—London, Arb. Brit. II. 849 (1838), as synonym of *C. punctata flava*.
- flavida* Sargent in Rep. Geol. Surv. Mich. 1906, 554 (1907).—**Intricatae**.—Ontario, Michigan (type locality: London, Ont.).
- flavo-carnis* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. 9 (1900).—Group?—North Carolina (type locality: Salisbury). (?)
- flexispina* (Moench) Sargent in Gard. & For. II. 424 (1889) = *C. flava* Ait.
- flexispina* var. *pubescens* (Gray) Millspaugh, Fl. W. Va. 360 (1892). (?)
- flexuosa* (Poir.) DeCandolle, Prodr. II. 627 (1825).—**Uniflorae**.—(Type region: "Carolina"). (?)
- floreana* Sargent in Rhodora, v. 145 (1903).—**Tenuifoliae**.—Nova Scotia, Maine (type locality: Orono, Me.).
- florens* Beadle in Biltmore Bot. Studies, I. 94 (1902).—**Flavae**.—Georgia, Mississippi, Louisiana (type locality: Columbus, Miss.).
- florida* Loddiges, Cat. 46 (1836), nomen nudum.—London, Arb. Brit. II. 841 (1838), as synonym of *C. parvifolia* Ait. = *C. uniflora* Muench.
- floridana* Sargent in Bot. Gaz. XXXIII. 124 (1902).—**Flavae**.—Florida (type locality: Jacksonville).
- floridula* Sargent in N. Y. State Mus. Bull. CXXII. 126 (1908).—**Anomalae**.—New York (type locality: Piseco).
- florifera* Sargent in Ontario Nat. Sci. Bull. IV. 14 (1908).—**Punctatae**.—Ontario (type locality: Toronto).
- fluviatilis* Sargent in Rhodora, v. 117 (1903) (as "fluviatalis").—**Coccineae**.—Quebec (type locality: Adirondack Junction).
- foetida* Ashe in Ann. Carnegie Mus. I. 389 (1902).—**Intricatae**.—Ontario, New England, New York, Pennsylvania (type locality: Berks County, Pa.).
- foliata* Sargent in N. Y. State Mus. Bull. CXXII. 53 (1908).—**Silvicolae**.—New York (type locality: Niagara Falls).

## CRATAEGUS

- Fontanesiana* (Spach) Steudel, Nom. Bot. ed. 2, I. 432 (1840).—**Crusgalli**.—Pennsylvania. (Type locality of *Mespilus Fontanesiana* Spach not given, but species based upon plants cultivated in Europe.)
- Fontanesiana*  $\beta$ . *angustifolia* Lange, Rev. Gen. Crat. 63 (1897) = *C. crusgalli* var. *pyracanthifolia* Ait.?
- Fontanesiana*  $\alpha$ . *latifolia* Lange, Rev. Gen. Crat. 63 (1897). (?)
- Fontanesiana*  $\alpha$ . *latifolia* f. *chlorocarpa* Lange, 63 (1897). (?)
- Forbesae* Sargent in *Rhodora*, v. 151 (1903).—**Tenuifoliae**.—Massachusetts, Connecticut (type locality: Worcester County, Mass.).
- formosa* Sargent in Proc. Rochester Acad. Sci. IV. 101 (1903).—**Pruinosae**.—Ontario, New York, Ohio (type locality: Rochester, N. Y.).
- fortis* Beadle in Biltmore Bot. Studies, I. 92 (1902).—**Flavae**.—Mississippi (type locality: Columbus).
- fortunata* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 239 (1910).—**Intricatae**.—Pennsylvania (type locality: Charleroi).
- Fortunei* Hort. ex Sargent in Jour. Arnold Arb. VI. 1 (1925), as a synonym of *C. Fontanesiana* Steud.
- franklinensis* Sargent in Jour. Arnold Arb. IV. 100 (1922).—**Pruinosae**.—Ohio (type locality: Columbus).
- fretalis* Sargent in *Rhodora*, v. 112 (1903).—**Coccineae**.—Connecticut (type locality: Groton).
- Fretzii* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 604 (1905).—**Silvicolae**.—Pennsylvania (type locality: Durham).
- fructuosa* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 232 (1910).—**Intricatae**.—Pennsylvania (type locality: West Chester).
- frugalis* Beadle in Biltmore Bot. Studies, I. 100 (1902).—**Flavae**.—Georgia (type locality: Albany).
- frugiferens* Beadle in Biltmore Bot. Studies, I. 30 (1901).—**Flavae**.—Alabama (type locality: Cullman).
- frutescens* Sargent in N. Y. State Mus. Bull. CXXII. 113 (1908).—**Macracanthae**.—New York (type locality: Coopers Plains).
- fruticosa* Sargent, Trees and Shrubs, I. 13 (1902).—**Uniflorae**.—Florida (type locality: Seville).
- fucata* Sargent in N. Y. State Mus. Bull. CXXII. 99 (1908).—**Tenuifoliae**.—New York (type locality: Coopers Plains).
- fucosa* Sargent in *Rhodora*, v. 137 (1903).—**Tenuifoliae**.—New Hampshire, Massachusetts (type locality: West Boylston, Mass.).
- fulgens* Sargent in *Rhodora*, VII. 182 (1905).—**Macracanthae**.—Massachusetts, Connecticut (type locality: Stratford, Ct.).
- fulgida* Sargent in Ontario Nat. Sci. Bull. IV. 84 (1908).—**Macracanthae**.—Ontario (type locality: Toronto).
- Fulleriana* Sargent in Proc. Rochester Acad. Sci. IV. 111 (1903).—**Molles**.—New York (type locality: Rochester).



## CRATAEGUS

- fulva* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 649 (1905).—**Intricatae**.—Pennsylvania (type locality: Forge Hill, Berks County).
- furcata* Sargent in Rep. Missouri Bot. Gard. XIX. 86 (1908) = *C. viridis* L.
- furtiva* Beadle in Biltmore Bot. Studies, I. 81 (1902).—**Flavae**.—Georgia (type locality: Albany).
- fusca* Sargent in Rhodora, VII. 193 (1905).—**Pruinosae**.—Vermont (type locality: Burlington).
- galbans* Beadle in Biltmore Bot. Studies, I. 74 (1902).—**Flavae**.—Florida (type locality: River Junction).
- Gattingeri* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. 12 (1900).—**Pruinosae**.—Ohio, Indiana, West Virginia, Illinois, Kentucky, Tennessee (type locality: Nashville, Tenn.).
- gaudens* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 170 (1910).—**Pruinosae**.—Pennsylvania (type locality: Riverview Park, Allegheny City).
- Gaultii* Sargent in Bot. Gaz. XXXV. 397 (1903).—**Macracanthae**.—Illinois (type locality: Milton Township, Du Page County).
- Gaylussacia* Heller in Bull. S. California Acad. Sci. II. 69 (1903).—**Douglasianae**.—California (type locality: Sebastopol, Sonoma County).
- gemmosa* Sargent in Bot. Gaz. XXXIII. 119 (1902).—**Macracanthae**.—Ontario, and New York, west to Ohio, Wisconsin and Illinois (type locality: Grand Rapids, Mich.).
- geneseensis* Sargent in N. Y. State Mus. Bull. CXXII. 27 (1908).—**Crus-galli**.—New York (type locality: Rochester).
- genialis* Sargent in Rhodora, V. 148 (1903).—**Tenuifoliae**.—Ontario, New England, New York (type locality: Stockbridge Bowl, Mass.).
- geniculata* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. 16 (1900).—**Flavae**.—North Carolina (type locality: "middle North Carolina"). (?)
- georgiana* Sargent in Bot. Gaz. XXXIII. 113 (1902).—**Pruinosae**.—Georgia (type locality: Rome).
- georgica* Loddiges, Cat. 46 (1836), nomen nudum.—Loudon, Arb. Brit. II. 849 (1838), as synonym of *C. spathulata* Michx.
- Gilbertiana* Sargent in N. Y. State Mus. Bull. CLXVII. 101 (1913).—**Coccineae**.—New York (type locality: Warren).
- gilva* Beadle in Biltmore Bot. Studies, I. 60 (1902).—**Intricatae**.—Alabama (type locality: Albertville).
- glabrata* Sargent in Ontario Nat. Sci. Bull. IV. 85 (1908).—**Macracanthae**.—Ontario (type locality: Toronto).
- glabrifolia* Sargent in Rep. Missouri Bot. Gard. XXII. 74 (1912).—**Punctatae?**—Missouri (type locality: Grandin).

## CRATAEGUS

- glabriuscula* Sargent in Bot. Gaz. xxxi. 235 (1901).—**Virides**.—Texas (type locality: Dallas).
- glandulifera* Loddiges, Cat. 46 (1836), nomen nudum.—Loudon, Arb. Brit. 11. 849 (1838), as synonym of *C. pyrifolia* Ait.
- glandulosa* Moench, Bäume Weiss. 31 (1785) = *C. macracantha* Lodd.?
- glandulosa* β. *Douglasii* (Lindl.) K. Koch, Hort. Dendr. 167 (1853) = *C. Douglasii*.
- glandulosa* e. *elliptica* Lauche, Deutsche Dendr. 573 (1883). (?)
- glandulosa* β. *macracantha* (Lodd.) Lindley in Bot. Reg. xxii. t. 1912 (1836) = *C. macracantha*.
- glandulosa* c. *odorata* (Wendl.) Lauche, Deutsche Dendr. 573 (1883). (?)
- glandulosa* γ. *purpurea* (Bosc) K. Koch, Hort. Dendr. 167 (1853). (?)
- glandulosa* δ. *rotundifolia* (Moench) K. Koch, Hort. Dendr. 167 (1853) = *C. rotundifolia*.
- glandulosa* ε. *succulenta* (Schrad.) K. Koch, Hort. Dendr. 167 (1853) = *C. succulenta*.
- glandulosa* α. *typica* Regel in Act. Hort. Petrop. i. 120 (1871) = *C. Bicknellii* Eggleston.
- glareosa* Ashe in Jour. Elisha Mitchell Sci. Soc. xviii. 21 (1902).—**Pruinosae**?—Michigan (type locality: Port Huron).
- glaucophylla* Sargent in Rhodora, v. 140 (1903).—**Tenuifoliae**.—Ontario, New England, New York, Pennsylvania and Michigan (type locality: Great Barrington, Mass.).
- globosa* Sargent in Rep. Missouri Bot. Gard. xix. 118 (1908).—**Macracanthae**.—Missouri (type locality: Monteer).
- gloriosa* Sargent in N. Y. State Mus. Bull. cxxii. 70 (1908) = *C. pedicellata* var. *gloriosa* Sarg.
- gracilipes* Sargent in N. Y. State Mus. Bull. cxxii. 119 (1908).—**Tenuifoliae**.—New York (type locality: Hemlock Lake, Livingston County).
- gracilis* Sargent in N. Y. State Mus. Bull. cxxii. 37 (1908).—**Pruinosae**.—New York, Ohio, Indiana (type locality: Niagara Falls, N. Y.).
- grandis* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. pt. 2, 9 (1901).—**Punctatae**.—Illinois (type locality not given). (?)
- gratiosa* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 243 (1910).—**Intricatae**.—Pennsylvania (type locality: Bedford Springs).
- Gravesii* Sargent in Rhodora, v. 159 (1903) = *C. Dodgei* Ashe.
- gravida* Beadle in Biltmore Bot. Studies, i. 119 (1902).—**Molles**.—Tennessee (type locality: Nashville).
- gravis* Ashe in Jour. Elisha Mitchell Sci. Soc. xx. 49 (1904).—**Silvicolae**.—Ontario, Michigan, Ohio (type locality: Port Huron, Mich.).
- Grayana* Eggleston in Rhodora, x. 80 (1908) = *C. flabellata* K. Koch.

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- gregalis* Beadle in Biltmore Bot. Studies, I. 118 (1902).—**Uniflorae**.—North Carolina, South Carolina (type locality: Biltmore, N. Car.).
- Greggiana* Eggleston in Bull. Torrey Bot. Club, xxxvi. 511 (1909).—**Molles**.—Mexico (type locality: Saltillo, Coahuila).
- grossa* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 223 (1910).—**Rotundifoliae**.—Pennsylvania (type locality: Bedford Springs).
- grossiserrata* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 112 (1900).—**Uniflorae**.—Florida (type locality not given). (?)
- grossulariaefolia* Loddiges, Cat. 39 (1826), nomen nudum.—Loudon, Arb. Brit. II. 849 (1838) as synonym of *C. crus-galli* var. *prunifolia*.
- Gruberi* Ashe in Ann. Carnegie Mus. I. 388 (1902).—**Tenuifoliae**.—Pennsylvania (type locality: Berks County).
- Habereri* Sargent in N. Y. State Mus. Bull. cxvi. Bot. x. 21 (1907).—**Tenuifoliae**.—New York (type locality: New Hartford).
- habilis* Ashe in Bot. Gaz. xxxv. 435 (1903).—**Coccineae**.—Ohio (type locality: Mansfield). (?)
- Hadleyana* Sargent in N. Y. State Mus. Bull. CLXVII. 93 (1913).—**Tenuifoliae**.—Ontario, New York (type locality: Herkimer).
- haemacarpa* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. 8 (1900).—**Pruinosae**.—North Carolina (type locality: banks of Cullasagee River, Macon County).
- Halliana* Sargent in N. Y. State Mus. Bull. cv. Bot. ix. 73 (1906).—**Macracanthae**.—New York (type locality: North Albany).
- hamata* Sargent in Rep. Missouri Bot. Gard. xix. 46 (1908).—**Crus-galli**.—Missouri (type locality: Pacific).
- Handyae* Sargent in Rhodora, vii. 177 (1905).—**Macrospermae**.—Massachusetts (type locality: Somerset).
- Harbisonii* Beadle in Bot. Gaz. xxviii. 413 (1899).—**Bracteatae**.—Tennessee (type locality: Nashville).
- Hargeri* Sargent in Rhodora, v. 66 (1903).—**Intricatae**.—Connecticut (type locality: Oxford).
- Harryi* Sargent in N. Y. State Mus. Bull. cxxii. 124 (1908).—**Rotundifoliae**.—New York (type locality: Richmond).
- Harveyana* Sargent in Jour. Arnold Arb. III. 200 (1923).—**Intricatae**.—Arkansas (type locality: Eureka Springs).
- heidbergensis* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 215 (1910).—**Tenuifoliae**.—Pennsylvania (type locality: Kutztown).
- heldbergensis* Sargent in N. Y. State Mus. Bull. cv. Bot. ix. 49 (1906).—**Crus-galli**.—New York (type locality: Thompsons Lake, Albany County).
- Helena* Sargent in Rhodora, vii. 162 (1905).—**Macracanthae**.—Massachusetts (type locality: Southboro).
- helvina* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 28 (1903).—**Crus-galli**.—Tennessee (type locality: Clarkton). (?)



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- Hillii* Sargent in Bot. Gaz. xxxv. 384 (1903).—**Coccineae**.—Ohio, Indiana, Illinois (type locality: Thatchers Park, Cook County, Ill.).
- hirtella* Sargent in Rep. Missouri Bot. Gard. xix. 62 (1908).—**Crus-galli**.—Missouri (type locality: Swan).
- hirtiflora* Sargent in Rep. Missouri Bot. Gard. xix. 82 (1908), as “*hirtiflora*.”—**Punctatae**.—Missouri (type locality: Swan).
- hispidula* Sargent in Rep. Missouri Bot. Gard. xix. 116 (1908).—**Macracanthae**.—Illinois, Missouri, Arkansas, Texas (type locality: Carthage, Mo.).
- Holmesiana* Ashe in Jour. Elisha Mitchell Sci. Soc. xvi. 78 (1900).—**Coccineae**.—Southeastern Canada and New England to New York and Pennsylvania (type locality: “central New York”).
- Holmesiana* var. *tardipes* Sargent in Jour. Arnold Arb. i. 254 (1920).—Southeastern Canada, New York, Ohio (type locality of *C. tardipes* Sarg.: Toronto, Ont.).
- Holmesiana* var. *villipes* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. pt. 2, 11 (1901).—Pennsylvania, New York (type locality not given).
- honeoyensis* Sargent in N. Y. State Mus. Bull. cxxii. 129 (1908).—**Macracanthae**.—New York (type locality: west of Honeoye Lake, Ontario County).
- honesta* Sargent in Rep. Geol. Surv. Mich. 1906, 558 (1907).—**Anomalae**.—Michigan (type locality: Grand Rapids).
- horrida* Medicus, Gesch. Bot. 84 (1793).—**Crus-galli**. (?)
- horridula* Sargent in Rep. Geol. Surv. Mich. 1906, 526 (1907).—**Pruinosae**.—Michigan, Ohio (type locality: Grand Rapids, Mich.).
- Howeana* Sargent in N. Y. State Mus. Bull. cv. Bot. ix. 52 (1906).—**Pruinosae**.—New York, Ohio (type locality: Menands, near Albany, N. Y.).
- Howellii* Heiser in Am. Midland Naturalist, v. 238 (1919) = *C. columbiana* Howell.
- hudsonica* Sargent, Man. Trees N. Am. 457 (1905).—**Dilatatae**.—New York (type locality: Albany).
- Huntiana* Sargent in N. Y. State Mus. Bull. clxvii. 105 (1913).—**Molles**.—New York (type locality: between Jordanville and Mud Lake, Herkimer County).
- hystricina* Ashe in Bot. Gaz. xxxv. 433 (1903).—**Macracanthae**.—Connecticut, New York (type locality: along Housatonic River, southern Connecticut).
- hybrida* Loddiges, Cat. 46 (1836), nomen nudum.—Loudon, Arb. Brit. ii. 849 (1838), as synonym of *C. crus-galli prunifolia*. (?)
- hypolasia* K. Koch, Hort. Dendr. 167 (1853) = *C. mexicana* Moç. & Sessé.

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- Ideae* Sargent in *Rhodora*, VII. 211 (1905).—**Anomalae**.—Vermont (type locality: Concord).
- ignava* Beadle in *Biltmore Bot. Studies*, I. 31 (1901).—**Flavae**.—Alabama (type locality: Valley Head).
- ignava* Sargent in *Proc. Acad. Nat. Sci. Phila.* LXII. 228 (1910) = *C. neosmithii* Sarg.
- ignea* Sargent in *N. Y. State Mus. Bull.* CXXII. 96 (1908).—**Tenuifoliae**.—New York, Indiana (type locality: Coopers Plains, N. Y.).
- illecebrosa* Sargent in *Jour. Arnold Arb.* LV. 103 (1923).—**Coccineae**.—Ontario (type locality: Kingston).
- illinoensis* Ashe in *Jour. Elisha Mitchell Sci. Soc.* XVI. 76 (1900).—**Macracanthae**.—Illinois (type locality: Wady Petra).
- illudens* Beadle in *Biltmore Bot. Studies*, I. 111 (1902).—**Flavae**.—Florida (type locality: Citra).
- illuminata* Sargent in *N. Y. State Mus. Bull.* CV. Bot. IX. 65 (1906).—**Rotundifoliae**.—New York (type locality: North Albany).
- illustris* Beadle in *Biltmore Bot. Studies*, I. 68 (1902).—**Pulcherrimae**.—Mississippi (type locality: Meridian).
- immanis* Ashe in *Jour. Elisha Mitchell Sci. Soc.* XIX. 22 (1903).—**Pruinosae**.—Ohio, Michigan (type locality: Port Huron).
- immitis* Ashe in *Jour. Elisha Mitchell Sci. Soc.* XIX. 28 (1903).—**Crusgalli**.—Pennsylvania (type locality: Delaware County). (?)
- impar* Beadle in *Biltmore Bot. Studies*, I. 72 (1902).—**Flavae**.—Georgia (type locality: Marietta).
- impervia* Sargent in *Proc. Acad. Nat. Sci. Phila.* LXII. 197 (1910).—**Silvicolae**.—Pennsylvania (type locality: Dunmore, near Scranton).
- implicata* Sargent in *N. Y. State Mus. Bull.* CXXII. 49 (1908).—**Silvicolae**.—New York (type locality: Buffalo).
- improvisa* Sargent in *Ontario Nat. Sci. Bull.* IV. 69 (1908).—**Anomalae**.—Ontario (type locality: Toronto).
- inanis* Beadle in *Biltmore Bot. Studies*, I. 62 (1902).—**Intricatae**.—Alabama (type locality: Albertville).
- inaudita* Sargent in *Ontario Nat. Sci. Bull.* IV. 64 (1908).—**Rotundifoliae**.—Ontario (type locality: Chippewa).
- incaedua* Sargent, *Trees and Shrubs*, II. 3 (1907).—**Punctatae**.—Missouri (type locality: Monteer).
- incana* Beadle in *Biltmore Bot. Studies*, I. 113 (1902).—**Flavae**.—Florida (type locality: Bristol).
- incerta* Sargent in *Rep. Geol. Surv. Mich.* 1906, 523 (1907).—**Punctatae**.—Michigan (type locality: Port Huron).
- incilis* Beadle in *Biltmore Bot. Studies*, I. 41 (1901).—**Pulcherrimae**.—Alabama (type locality: Evergreen).
- incisa* Sargent in *Rhodora*, VII. 196 (1905).—**Pruinosae**.—Connecticut (type locality: Stratford).

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- incompta* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 183 (1910).—**Pruinosae**.—Pennsylvania (type locality: Scranton).
- indentata* Loddiges, Cat. 46 (1836), nomen nudum.—Loudon, Arb. Brit. II. 817 (1838), as synonym of *C. coccinea* var. *indentata*. (?)
- indicens* Ashe in Jour. Elisha Mitchell Sci. Soc. XIX. 27 (1903).—**Punctatae**.—Ohio (type locality: Mansfield). (?)
- indigens* Ashe in Jour. Elisha Mitchell Sci. Soc. XIX. 13 (1903).—**Uniflorae**.—North Carolina (type locality: Moore County). (?)
- inducta* Ashe in Jour. Elisha Mitchell Sci. Soc. XIX. 24 (1903).—**Intricatae**.—Pennsylvania (type locality not given).
- induta* Sargent, Trees and Shrubs, I. 115 (1903).—**Molles**.—Arkansas (type locality: Fulton).
- infensa* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 201 (1910).—**Silvicolae**.—Pennsylvania (type locality: Charleroi).
- infera* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 651 (1905).—**Intricatae**.—Pennsylvania (type locality: Sellersville).
- infesta* Sargent in Rep. Missouri Bot. Gard. XIX. 45 (1908).—**Crusgalli**.—Missouri (type locality: Pacific).
- ingens* Beadle in Biltmore Bot. Studies, I. 56 (1902).—**Virides**.—Tennessee (type locality: Chattanooga).
- ingestria* Loddiges, Cat. 46 (1836), nomen nudum.—Loudon, Arb. Brit. II. 821 (1838), as var. of *C. prunifolia*; l.c., 849, as synonym of *C.?* *crus-galli prunifolia* = *C. prunifolia* Pers.?
- ingrata* Ashe in Jour. Elisha Mitchell Sci. Soc. XX. 54 (1904).—**Pruinosae**.—Pennsylvania (type locality: Pittsburgh). (?)
- inopina* Beadle in Biltmore Bot. Studies, I. 107 (1902).—**Flavae**.—Florida (type locality: Ocala). (?)
- inopinata* Sargent in N. Y. State Mus. Bull. CXXII. 108 (1908).—**Anomalae**.—New York (type locality: Coopers Plains).
- inops* Beadle in Biltmore Bot. Studies, I. 96 (1902).—**Flavae**.—Alabama (type locality: Ozark). (?)
- insidiosa* Beadle in Biltmore Bot. Studies, I. 94 (1902).—**Flavae**.—Georgia, Alabama (type locality: Ozark, Ala.).
- insignata* Sargent in N. Y. State Mus. Bull. CXXII. 101 (1908).—**Tenuifoliae**.—New York (type locality: Coopers Plains).
- insignis* Sargent, Trees and Shrubs, I. 107 (1903).—**Crus-galli**.—Illinois (type locality: Kahokia).
- insolens* Sargent in Rhodora, VII. 217 (1905).—**Rotundifoliae**.—Vermont (type locality: Concord).
- insolita* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 622 (1905).—**Tenuifoliae**.—Pennsylvania (type locality: Collen Brook, Upper Darby).
- insperata* Sargent in Rep. Missouri Bot. Gard. XIX. 123 (1908).—**Macracanthae**.—Missouri (type locality: Carthage).



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- insueta* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 599 (1905).—**Pruinosae**.—Pennsylvania (type locality: West Fairmount Park, Philadelphia, cultivated from unknown source).
- integra* (Nash) Beadle in Biltmore Bot. Studies, I. 87 (1902).—**Flavae**.—Florida (type locality of *C. flava* var. *integra* Nash: Lake Ella).
- integriloba* Sargent in Rhodora, III. 78 (1901).—**Macracanthae**.—Quebec (type locality: Caughnawaga).
- interior* Beadle in Biltmore Bot. Studies, I. 52 (1902).—**Virides**.—Tennessee, Alabama, Mississippi (type locality: Chattanooga, Tenn.).
- intermixta* Sargent in Jour. Arnold Arb. III. 5 (1922).—**Crus-galli**.—Missouri (type locality: Riverside Park, Hannibal).
- intricata* Lange in Bot. Tidsskr. XIX. 264 (1895).—**Intricatae**.—New England and New York to Pennsylvania and West Virginia (type locality: Botanical Garden of Copenhagen, cultivated).
- insitula* Sargent in N. Y. State Mus. Bull. CXXII. 55 (1908).—**Pruinosae**.—New York (type locality: Chapinville).
- invicta* Beadle in Biltmore Bot. Studies, I. 37 (1901).—**Flavae**.—Georgia (type locality: Doctortown).
- invisa* Sargent, Trees and Shrubs, II. 147 (1911).—**Molles**.—Arkansas, Oklahoma, Texas (type locality: Fulton, Ark.).
- iracunda* Beadle in Biltmore Bot. Studies, I. 124 (1902).—**Pruinosae**.—Georgia (type locality: Rome).
- irrasa* Sargent in Rhodora, V. 116 (1903).—**Coccineae**.—Quebec, New York (type locality: Sault au Ricollet, Montreal Island, Que.).
- irrasa* var. *Blanchardi* (Sarg.) Eggleston in Rhodora, X. 79 (1908) = *C. Blanchardii*.
- irrasa* var. *divergens* Peck in N. Y. State Mus. Bull. LXXV. Bot. VII. 51 (1904) = *C. divergens*.
- iterata* Sargent in Jour. Arnold Arb. IV. 102 (1923).—**Silvicolae**.—New York (type locality of *C. seclusa* Sarg., which this name replaces: Hemlock Lake, Livingston County).
- Jackii* Sargent in Rhodora, V. 162 (1903).—**Rotundifoliae**.—Quebec (type locality: Caughnawaga).
- jasperensis* Sargent in Rep. Missouri Bot. Gard. XIX. 61 (1908).—**Crus-galli**.—Missouri (type locality: Webb City).
- jejuna* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 593 (1905).—**Pruinosae**.—Pennsylvania, Ohio (type locality: Sellersville, Pa.).
- Jenningsii* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 241 (1910).—**Intricatae**.—Pennsylvania, Ohio (type locality: Kittanning, Pa.).
- Jesupii* Sargent in Rhodora, V. 611 (1903).—**Pruinosae**.—Vermont (type locality: West Rutland).
- Jonesae* Sargent in Bot. Gaz. XXXI. 14 (1901).—**Rotundifoliae**.—South-eastern Canada, Maine (type locality: Bar Harbor, Me.).

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- Keepii* Sargent in *Rhodora*, v. 165 (1903).—**Rotundifoliae**.—Maine (type locality: Fort Fairfield).
- Kellermanii* Sargent, *Trees and Shrubs*, II. 239 (1913).—**Pruinosae**.—Ohio, Kentucky (type locality: Dennison, O.).
- Kelloggii* Sargent, *Trees and Shrubs*, I. 117 (1903).—**Molles**.—Missouri (type locality: St. Louis).
- Kilmanii* Loddiges, *Cat.* 46 (1836), *nomen nudum*.—Loudon, *Arb. Brit.* II. 849 (1838) as synonym of *C.?* *coccinea* var. *maxima*, Lodd.
- Kennedyi* Sargent, *Trees and Shrubs*, II. 73 (1903).—**Rotundifoliae**.—Vermont (type locality: summit of Willoughby Mountain, Orleans County).
- kingstonensis* Sargent in *Jour. Arnold Arb.* III. 205 (1922).—**Rotundifoliae**.—Ontario (type locality: Kingston).
- Kinzeræ* Sargent in *Proc. Acad. Nat. Sci. Phila.* LXII. 234 (1910).—**Intricatae**.—Pennsylvania (type locality: Schenley Park, Pittsburgh).
- Knieskerniana* Sargent in *N. Y. State Mus. Bull.* CLXVII. 116 (1913).—**Anomalæ**.—Quebec, New York (type locality: East Herkimer, N. Y.).
- lacera* Sargent in *Bot. Gaz.* XXXIII. 123 (1902).—**Tenuifoliae?**—Arkansas (type locality: Fulton).
- lacrimata* Small in *Torreya*, I. 97 (1901).—**Flavae**.—Florida (type locality: Crestview).
- laetans* Sargent in *Proc. Acad. Nat. Sci. Phila.* LXII. 205 (1910).—**Silvicolæ**.—Pennsylvania (type locality: Pittsburgh).
- laetifica* Sargent in *Proc. Acad. Nat. Sci. Phila.* LXII. 250 (1910).—**Intricatae**.—Pennsylvania (type locality: Bedford).
- laetula* Sargent in *Proc. Acad. Nat. Sci. Phila.* LXII. 233 (1910).—**Intricatae**.—Pennsylvania (type locality: Newtown).
- lanata* Beadle in *Biltmore Bot. Studies*, I. 86 (1902).—**Flavae**.—North Carolina, Georgia (type locality: McGuire's Mill, Gwinnett County, Ga.).
- lanceolata* Sargent, *Trees and Shrubs*, II. 65 (1908).—**Virides**.—Missouri (type locality: St. Louis).
- lancifolia* Wenderoth, *Ind. Sem. Hort. Marb.* (1825) ex *Flora*, IX. pt. 1, 354 (1826) = *C. crus-galli* var. *pyracanthifolia* Ait.
- Laneyi* Sargent, *Trees and Shrubs*, I. 5 (1902).—**Macracanthæ**.—New York (type locality: Rochester).
- lanigera* Sargent in *Rep. Missouri Bot. Gard.* XIX. 107 (1908).—**Molles**.—Illinois, Kentucky, Missouri (type locality: East St. Louis, Ill.).
- lanuginosa* Sargent, *Trees and Shrubs*, I. 113 (1903).—**Molles**.—Missouri, Kansas, Arkansas (type locality: Webb City, Mo.).
- larga* Sargent in *Rep. Missouri Bot. Gard.* XIX. 85 (1908).—**Virides**.—Illinois (type locality: Cahokia).

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- lasiantha* Sargent in Rep. Missouri Bot. Gard. xix. 105 (1908).—**Molles**.—Missouri, Kansas, Oklahoma (type locality: Webb City, Mo.).
- lassa* Beadle in Biltmore Bot. Studies, i. 29 (1901).—**Flavae**.—Alabama (type locality: Selma).
- lata* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 610 (1905).—**Tenuifoliae**.—Pennsylvania (type locality: Sellersville).
- latebrosa* Sargent in Rep. Missouri Bot. Gard. xxii. 73 (1912).—**Punctatae**.—Missouri, Arkansas (type locality: Noel, Mo.).
- latiflora* Sargent in N. Y. State Mus. Bull., CLXVII. 83 (1913).—**Pruinosae**.—New York (type locality: Richmond, Livingston County).
- latifolia* Persoon, Syn. II. 37 (1807) = *C. tomentosa* L.?
- latifrons* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 181 (1910).—**Pruinosae**.—Pennsylvania (type locality: Orbisonia).
- latisepala* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 109 (1900).—**Pruinosae**.—Michigan, Ohio (type locality: "eastern Michigan").
- laurentiana* Sargent in Rhodora, III. 77 (1901).—**Macracanthae**.—Quebec (type locality: Caughnawaga).
- laurifolia* Medicus, Gesch. Bot. 84 (1793).—**Crus-galli**.—(?).
- lauta* Sargent in Rhodora, VII. 206 (1905).—**Molles**.—Known only in cultivation. (Type locality: Olmstead Park, Boston, Mass.).
- lawrencensis* Sargent in Jour. Arnold Arb. III. 3 (1922).—**Crus-galli**.—Missouri (type locality: Larussell).
- laxa* Beadle in Biltmore Bot. Studies, I. 103 (1902).—**Flavae**.—Alabama (type locality: Phoenix City).
- laxiflora* Sargent in Bot. Gaz. xxxv. 400 (1903).—**Macracanthae**.—Illinois (type locality: Mokena).
- lecta* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 187 (1910).—**Pruinosae**.—Pennsylvania (type locality: between Carnot and Stoope's Ferry, Allegheny County).
- leimonia* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 194 (1910).—**Silvicolae**.—Pennsylvania (type locality: Kittanning).
- leioclada* Sargent in Rep. Missouri Bot. Gard. xix. 113 (1908).—**Intricatae**.—Missouri, Arkansas (type locality: Swan, Mo.).
- leiophylla* Sargent in Proc. Rochester Acad. Sci. IV. 99 (1903).—**Pruinosae**.—New York, Pennsylvania, Ohio, Indiana (type locality: Rochester, N. Y.).
- leiophylla* var. *maineana* (Sarg.) Eggleston in Rhodora, x. 81 (1908) = *C. maineana*.
- lemingtonensis* Sargent in Rhodora, VII. 216 (1905).—**Rotundifoliae**.—Vermont, New Hampshire (type locality: Lemington, Vt.).
- lenis* Beadle in Biltmore Bot. Studies, I. 67 (1902).—**Pulcherrimae**.—Alabama (type locality: Greenville). (?)



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- Lennoniana* Sargent in Proc. Rochester Acad. Sci. iv. 98 (1903).—**Pruinosae**.—New York (type locality: Rochester).
- lenta* Ashe in Jour. Elisha Mitchell Sci. Soc. xviii. 18 (1902).—**Coccineae**.—Quebec, Michigan (type locality: Port Huron, Mich.).
- lentula* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 25 (1903).—**Intricatae**.—North Carolina (type locality: Catawba).
- lepidula* Beadle in Biltmore Bot. Studies, i. 36 (1901).—**Flavae**.—Georgia, Florida (type locality: Waycross, Ga.).
- leptalea* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 231 (1910).—**Intricatae**.—Pennsylvania (type locality: Bedford Springs).
- leptophylla* Sargent in Rep. Missouri Bot. Gard. xix. 69 (1908).—**Crus-galli**.—Missouri (type locality: Osage).
- leptopoda* Sargent in N. Y. State Mus. Bull. cxxii. 118 (1908).—**Tenuifoliae**.—New York (type locality: Hemlock Lake, Livingston County).
- Letchworthiana* Sargent in N. Y. State Mus. Bull. cxxii. 68 (1908).—**Coccineae**.—New York (type locality: Portage).
- Lettermanii* Sargent in Bot. Gaz. xxxi. 220 (1901).—**Punctatae**.—Missouri (type locality: Allenton).
- leucophleos* Moench, Bäume Weiss. 31 (1785).—**Macracanthae**.—(?)
- levis* Sargent in Rhodora, vii. 198 (1905).—**Pruinosae**.—Connecticut (type locality: Litchfield).
- limaria* Sargent, Trees and Shrubs, ii. 149 (1911).—**Molles**.—Arkansas, Oklahoma, Texas, Mexico (type locality: Fulton, Ark.).
- limata* Beadle in Biltmore Bot. Studies, i. 77 (1902).—**Flavae**.—Georgia (type locality: Warm Springs).
- limatula* Sargent in Ontario Nat. Sci. Bull. iv. 16 (1908), as "*limatala*".—**Punctatae**.—Ontario (type locality: London).
- limnophylla* Sargent in Jour. Arnold Arb. iii. 3 (1922).—**Crus-galli**.—Florida (type locality: St. Marks).
- limosa* Sargent in N. Y. State Mus. Bull. cxxii. 67 (1908).—**Coccineae**.—New York (type locality: Rochester).
- Lindenii* Stapf in Kew Bull. Misc. Inform. 1914, 326 (1914).—Group?—Mexico (type locality: Chiapas, Ciudad Real). (?)
- linearifolia* Hort. ex Nicholson in Hand-list Arb. Kew, pt. 1, 197 (1894) as synonym of *C. crus-galli* var. *linearis* DC.
- linearis* Persoon, Syn. ii. 37 (1807) = *C. crus-galli* var. *pyracanthifolia* Ait.
- littoralis* Sargent in Rhodora, v. 59 (1903).—**Pruinosae**.—Connecticut (type locality: Waterford).
- Livingstoniana* Sargent in N. Y. State Mus. Bull. cxxii. 116 (1908).—**Silvicolae**.—New York (type locality: Hemlock Lake, Livingston County).

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- livoniana* Sargent, Trees and Shrubs, II. 3 (1908).—**Crus-galli**.—New York (type locality: Hemlock Lake).
- lobata* (Poir.) Bosc in DeCandolle, Prodr. II. 628 (1825).—**Macracanthae**.—(?)
- lobulata* Sargent in Rhodora, III. 22 (1901).—**Coccineae**.—New England, New York (type locality: New Haven, Vt.).
- locuples* Sargent in Rep. Missouri Bot. Gard. XIX. 97 (1908).—**Pruinosae**.—Missouri (type locality: Barretts Station).
- Loddigesii* Hort. ex Nicholson in Hand-list Arb. Kew, pt. 1, 207 (1894) as synonym of *C. punctata* Jacq.
- longipedunculata* Sargent in Ontario Nat. Sci. Bull. IV. 26 (1908).—**Pruinosae**.—Ontario, New York, Ohio (type locality: Chippewa, Ont.).
- longipetiolata* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 621 (1905).—**Tenuifoliae**.—Pennsylvania (type locality: Sellersville).
- longispina* Sargent in Bot. Gaz. XXXV. 398 (1903).—**Macracanthae**.—Illinois (type locality: Lake Zurich).
- lucida* Miller, Dict. ed. 8, no. 6 (1768) = *C. crus-galli* L.
- lucida* Elliot, Sketch, I. 548 (1821) = *C. aestivalis* T. & G.?
- lucorum* Sargent in Bot. Gaz. XXXI. 227 (1901).—**Tenuifoliae**.—New York, Ohio, Illinois (type locality: Barrington, Ill.).
- lucorum* var. *insolens* (Sarg.) Eggleston in Rhodora, X. 79 (1908) = *C. insolens*.
- luculenta* Sargent, Trees and Shrubs, I. 11 (1902) = *C. aestivalis* var. *cerasoides* f. *luculenta* Sarg.
- ludoviciensis* Sargent, Trees and Shrubs, II. 5 (1907).—**Virides**.—Missouri (type locality: St. Louis).
- lumaria* Ashe in Jour. Elisha Mitchell Sci. Soc. XIX. 25 (1903) = *C. Dodgei* var. *lumaria* Sarg.
- luminosa* Sargent in N. Y. State Mus. Bull. CXXXII. 63 (1908).—**Tenuifoliae**.—New York (type locality: Buffalo).
- lutea* Poiret apud Jackson, Ind. Kew. I. 636 (1893), as synonym of *C. tomentosa* L.—*Mespilus lutea* Poiret in Lamarck, Encycl. Meth. Suppl. IV. 71 (1816).
- lutensis* Sargent in Rep. Missouri Bot. Gard. XXII. 75 (1912).—**Virides**.—Missouri, Oklahoma (type locality: Reding's Mill, near Joplin, Mo.).
- luteola* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 240 (1910).—**Intricatae**.—Pennsylvania (type locality: Orbisonia).
- luxuriosa* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 198 (1910).—**Silvicolae**.—Pennsylvania (type locality: Kittanning).
- Macauleyae* Sargent in Proc. Rochester Acad. Sci. IV. 130 (1903).—**Rotundifoliae**.—New York (type locality: Genessee Valley Park, Rochester).

- macera* Sargent in N. Y. State Mus. Bull. cxxii. 117 (1908).—**Silvicolae**.—Ontario, New York (type locality: Hemlock Lake, N. Y.).
- macilenta* Beadle in Biltmore Bot. Studies, i. 64 (1902).—**Intricatae**.—Alabama (type locality: Albertville).
- Mackensenii* Sargent, Trees and Shrubs, ii. 242 (1913) = *C. limaria* Sarg.
- Mackenzii* Sargent in Mackenzie, Man. Fl. Jackson County, Mo. 108 (1902).—**Pruinosae**.—Missouri (type locality: Jackson County).
- Macnabiana* Hort. ex Nicholson in Hand-list Arb. Kew, pt. 1, 199 (1894), as synonym of *C. Douglasii* var. *rivularis* Sarg.
- Macounii* Sargent in Ontario Nat. Sci. Bull. iv. 41 (1908).—**Coccineae**.—Ontario (type locality: Toronto).
- macra* Beadle in Biltmore Bot. Studies, i. 134 (1902).—**Crus-galli**.—North Carolina, Georgia, Mississippi (type locality: Rome, Ga.).
- macracantha* Loddiges, Cat. 46 (1836), nomen nudum.—Loudon, Arb. Brit. ii. 819 (1838).—**Macracanthae**.—Ontario, Vermont and New York to northern Illinois. (First known and described from plants cultivated in European gardens.)
- macracantha* var. *minor* Loudon, Arb. Brit. ii. 819 (1838). (?)
- macracantha* var. *neofluvialis* (Ashe) Eggleston in Rhodora, x. 83 (1908) = *C. neofluvialis*.
- macracantha* var. *occidentalis* (Britton) Eggleston in Rhodora, x. 82 (1908) = *C. succulenta* Schrad.?
- macracantha* var. *rhombifolia* (Sarg.) Eggleston in Rhodora, x. 82 (1908) = *C. rhombifolia*.
- macracantha* var. *succulenta* (Schrad.) Rehder in Bailey, Cycl. Am. Hort. i. 396 (1900) = *C. succulenta*.
- macrocalyx* Sargent in N. Y. State Mus. Bull. cxxii. 89 (1908).—**Pruinosae**.—New York (type locality: Coopers Plains).
- macrophylla* Sarg. in Rep. Missouri Bot. Gard. xix. 104 (1908).—**Molles**.—Missouri (type locality: Carondelet).
- macropoda* Sargent in Rep. Missouri Bot. Gard. xix. 80 (1908).—**Punctatae**.—Missouri, Kansas, Arkansas (type locality: Webb City, Mo.).
- macroserma* Ashe in Jour. Elisha Mitchell Sci. Soc. xvi. 73 (1900).—**Tenuifoliae**.—North Carolina and West Virginia to Georgia and Tennessee (type locality: Lookout Mountain, Tenn.).
- macroserma* var. *acutiloba* (Sarg.) Eggleston in Rhodora, x. 80 (1908) = *C. acutiloba*.
- macroserma* var. *demissa* (Sarg.) Eggleston in Rhodora, x. 80 (1908) = *C. demissa*.
- macroserma* var. *matura* (Sarg.) Eggleston in Rhodora, x. 80 (1908) = *C. matura*.
- macroserma* var. *pastorum* (Sarg.) Eggleston in Rhodora, x. 80 (1908) = *C. pastorum*.



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- macrosperma* var. *pentandra* (Sarg.) Eggleston in *Rhodora*, x. 80 (1908) = *C. pentandra*.
- macrosperma* × *pruinosa* Eggleston in N. Y. State Mus. Bull. CCXLIII-IV. 64 (1923). (?)
- macrosperma* × *punctata* Eggleston in N. Y. State Mus. Bull. CCXLIII-IV. 64 (1923). (?)
- magniflora* Sargent in Bot. Gaz. xxxv. 383 (1903).—Coccineae.—Ontario, Northern Illinois (type locality: Glendon Park, near Chicago, Ill.).
- magnifolia* Sargent, Trees and Shrubs, II. 69 (1908).—Pruinosae.—Missouri (type locality: Webb City).
- Maineana* Sargent in Proc. Rochester Acad. Sci. IV. 106 (1903).—Silvicolae.—New York (type locality: Rochester).
- maligna* Sargent in N. Y. State Mus. Bull. CLXVII. 111 (1913).—Rotundifoliae.—New York (type locality: Ogdensburg).
- maloides* Sargent, Trees and Shrubs, I. 9 (1902) = *C. aestivalis* var. *maloides* Sarg.
- mansfieldensis* Sargent in Jour. Arnold Arb. IV. 103 (1923).—Rotundifoliae.—Ohio (type locality: Mansfield).
- marcida* Ashe in Jour. Elisha Mitchell Sci. Soc. xx. 53 (1904).—Tenuifoliae.—Ohio (type locality not given).
- Margaretta* Ashe in Jour. Elisha Mitchell Sci. Soc. XVI. 72 (1900).—Rotundifoliae.—Ontario and West Virginia, west to Ohio, Iowa and Missouri (type locality: St. Louis County, Mo.).
- Margaretta* var. *Brownii* (Britton) Sargent in Jour. Arnold Arb. III. 199 (1922).—Pennsylvania, Virginia and West Virginia, west to Ohio, Indiana and Missouri (type locality of *C. Brownii*: Buchanan, Va.).
- Margaretta* f. *xanthocarpa* Sargent in Jour. Arnold Arb. III. 200 (1922).—Iowa (type locality: Steamboat Rock).
- Maribella* Sargent in N. Y. State Mus. Bull. CLXVII. 109 (1913).—Rotundifoliae.—New York (type locality: Little Falls).
- mariettensis* Sargent in Jour. Arnold Arb. III. 194 (1922).—Pruinosae.—Ohio (type locality: Marietta).
- Marshallii* Eggleston in *Rhodora*, x. 79 (1908) = *C. apiifolia* Michx.
- matura* Sargent in *Rhodora*, III. 24 (1901); v. 144 (1903).—Tenuifoliae.—Southeastern Canada, New England, New York, Michigan (type locality: Middlebury, Vt.).
- McGeae Ashe in Jour. Elisha Mitchell Sci. Soc. XVIII. 20 (1902).—Group?—Iowa (type locality: "southeastern Iowa"). (?)
- media* Sargent in *Rhodora*, v. 150 (1903).—Tenuifoliae.—Connecticut (type locality: Oxford).
- medioxima* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 190 (1910).—Silvicolae.—Pennsylvania, Ohio (type locality: between Carnot and Stoope's Ferry, Pa.).

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- meiophylla* Sargent in Jour. Arnold Arb. III. 198 (1922).—**Rotundifoliae**.—Ohio (type locality: Mt. Victory).
- mellita* Sargent in N. Y. State Mus. Bull. cv. Bot. IX. 58 (1906).—**Tenuifoliae**.—New York (type locality: Sandlake).
- membranacea* Sargent in Rhodora, v. 186 (1903).—**Macracanthae**.—Vermont (type locality: Middlebury).
- menandiana* Sargent in N. Y. State Mus. Bull. cv. Bot. IX. 68 (1906).—**Macracanthae**.—New York (type locality: golf grounds, Menands).
- mendosa* Beadle in Biltmore Bot. Studies, I. 65 (1902).—**Intricatae**.—Alabama (type locality: Albertville).
- mercensis* Sargent in Jour. Arnold Arb. III. 193 (1922).—**Rotundifoliae**.—West Virginia (type locality: Mercer Springs).
- meridiana* Beadle in Biltmore Bot. Studies, I. 115 (1902).—**Flavae**.—Alabama (type locality: Ozark).
- meridionalis* Sargent in Jour. Arnold Arb. I. 252 (1920).—**Molles**.—Alabama, Mississippi (type locality: Gallion, Ala.).
- merita* Sargent in Rep. Geol. Surv. Mich. 1906, 540 (1907).—**Tenuifoliae**.—Michigan (type locality: Grand Rapids).
- mespilifolia* Hort. ex Nicholson in Hand-list Arb. Kew, pt. 1, 203 (1894) as synonym of *C. mollis* Scheele.
- meticulosa* Sargent, Trees and Shrubs, II. 243 (1913).—**Intricatae**.—Michigan, Indiana (type locality: Grand Rapids, Mich.).
- mexicana* Mociño & Sessé apud DeCandolle, Prodr. II. 629 (1825).—Group?—Mexico (type region: "Nova Hispana").
- mexicana* var. *microsperma* Eggleston in Bull. Torrey Bot. Club, XXXVI. 508 (1909).—Mexico (type locality: Guadalajara, Jalisco).
- Michauxii* Persoon, Syn. II. 38 (1807).—**Flavae**.—North Carolina, Georgia (type region: "Carol. Superior").
- michiganensis* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 111 (1900).—**Macracanthae**.—Michigan (type locality not given).
- micracantha* Sargent, Trees and Shrubs, I. 69 (1902).—**Virides**.—Arkansas (type locality: Fulton).
- micrantha* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 658 (1905).—**Macracanthae**.—Pennsylvania (type locality: Sellersville).
- microcarpa* Lindley in Bot. Reg. XXII. t. 1846 (1836) = *C. spathulata* Michx.
- microsperma* Sargent in Ontario Nat. Sci. Bull. IV. 82 (1908).—**Macracanthae**.—Southeastern Canada, New York (type locality: Toronto, Ont.).
- Milleri* Sargent in Jour. Arnold Arb. IV. 101 (1923).—**Pruinosae**.—Pennsylvania (type locality: Erie).
- miniata* Ashe in Jour. Elisha Mitchell Sci. Soc. XX. 51 (1904).—**Tenuifoliae**.—Pennsylvania, Ohio (type locality: Berks County, Pa.).

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- minutiflora* Sargent in Ontario Nat. Sci. Bull. iv. 54 (1908).—**Intricatae**.—Ontario, New York (type locality: Toronto, Ont.).
- mira* Beadle in Biltmore Bot. Studies, i. 78 (1902).—**Flavae**.—Georgia (type locality: Marietta).
- miranda* Sargent in Rep. Geol. Surv. Mich. 1906, 547 (1907).—**Coccineae**.—Ontario, Michigan, Ohio (type locality: Sarnia, Ont.).
- misella* Sargent in N. Y. State Mus. Bull. CLXVII. 115 (1913).—**Anomalae**.—New York (type locality: Belfast).
- missouriensis* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 110 (1900).—**Macracanthae?**—Tennessee, Missouri (type locality: Monteer, Mo.).
- mitis* Sargent, Man. Trees N. Am. 407 (1905).—**Virides**.—Illinois (type locality: Cahokia).
- modesta* Sargent in Rhodora, III. 28 (1901).—**Intricatae**.—New England, New York, Pennsylvania (type locality: West Rutland, Vt.).
- modica* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 624 (1905).—**Tenuifoliae**.—Pennsylvania (type locality: Sellersville).
- Mohrii* Beadle in Bot. Gaz. XXVIII. 416 (1899).—**Crus-galli**.—Georgia and Alabama, west to Kentucky, Tennessee and Arkansas (type locality: Birmingham, Ala.).
- mollicula* Sargent, Trees and Shrubs, II. 13 (1907).—**Macracanthae**.—Missouri, Arkansas (type locality: Monteer, Mo.).
- mollipes* Sargent in Rep. Geol. Surv. Mich. 1906, 545 (1907).—**Molles**.—Michigan, Indiana (type locality: Grand Rapids, Mich.).
- mollis* (Torr. & Gray) Scheele in Linnaea, XXI. 569 (1848).—**Molles**.—Ontario and Michigan west to Minnesota and Nebraska, south to Tennessee, Missouri and eastern Kansas (type region: "in civitate Illinoensi Americae borealis").
- mollis* var. *champlainensis* (Sarg.) Cowles in Am. Nat. XLII. 269 (1908) = *C. champlainensis*.
- mollis* var. *Ellwangeriana* (Sarg.) Cowles in Am. Nat. XLII. 269 (1908) = *C. Ellwangeriana*.
- mollis* var. *sera* (Sarg.) Eggleston in Rhodora, x. 82 (1908) = *C. sera*.
- mollis* var. *tiliaefolia* (K. Koch) Koehne, Deutsche Dendr. 232 (1893) = *C. mollis* Scheele.
- mollita* Sargent, Trees and Shrubs, II. 77 (1908).—**Macracanthae**.—Missouri (type locality: Monteer).
- monantha* Sargent, Trees and Shrubs, II. 237 (1913).—**Aestivales?**—Florida (type locality: Seville).
- monosperma* Sargent in Rep. Missouri Bot. Gard. XIX. 56 (1908).—**Crus-galli**.—Missouri (type locality: Swan).
- monstrata* Sargent in Rhodora, v. 146 (1903).—**Tenuifoliae**.—Massachusetts, Connecticut (type locality: Eight Mile Brook, Southbury and Middlebury, Ct.).



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- montivaga* Sargent in Jour. Arnold Arb. i. 247 (1920).—**Crus-galli**.—Texas (type locality: Spring Creek, near Boerne).
- moselemensis* Gruber in Bull. Torrey Bot. Club, xxxii. 391 (1905).—**Punctatae**.—Pennsylvania (type locality: Moselem). (?)
- moselemensis* var. *corrugata* Gruber in Bull. Torrey Bot. Club, xxxii. 391 (1905).—Pennsylvania (type locality: Charming Forge, Berks County). (?)
- Moyeriana* Sargent in Proc. Acad. Nat. Sci. Phila. lvii. 618 (1905).—**Tenuifoliae**.—Pennsylvania (type locality: Sellersville).
- multifida* Ashe in Jour. Elisha Mitchell Sci. Soc. xx. 52 (1904).—**Tenuifoliae**.—Michigan (type locality: Port Huron). (?)
- multipes* Ashe in Bull. N. Car. Exper. Sta. clxxv. 111 (1900).—Group?—Ohio (type locality not given). (?)
- multispina* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. 7 (1900).—**Crus-galli**.—North Carolina (type locality: Round Knob, below Swannona Gap). (?)
- munda* Beadle in Biltmore Bot. Studies, i. 38 (1901).—**Flavae**.—South Carolina (type locality: Batesburg).
- munita* Sargent in Rep. Missouri Bot. Gard. xix. 73 (1908).—**Crus-galli**.—Missouri, Kansas, Oklahoma (type locality: Webb City, Mo.).
- nana* (Dum.) Sweet, Hort. Brit. ed. 3, 209 (1839).—*Mespilus nana* Dumont de Courset, Bot. Cult. ed. 2, vii. 286 (1814) = *C. crus-galli* var. *pyracanthifolia* Ait.?
- Napaea* Sargent in Rhodora, vii. 203 (1905).—**Tenuifoliae**.—Connecticut (type locality: Litchfield).
- napolitana* Loddiges, Cat. 46 (1836), nomen nudum.—Loudon, Arb. Brit. ii. 849 (1838), as synonym of *C. coccinea* L.
- Nelsonii* Eggleston in Bull. Torrey Bot. Club, xxxvi. 512 (1909).—Group?—Mexico (type locality: San Cristobal, Chiapas). (?)
- memoralis* Sargent in Bot. Gaz. xxxv. 104 (1903).—**Intricatae**.—Pennsylvania, Delaware (type locality: Rockford Park, Wilmington, Del.).
- memorosa* Sargent in N. Y. State Mus. Bull. cl. 28 (1911).—**Pruinosae**.—New York (type locality: Painted Post).
- neobaxteri* Sargent in N. Y. State Mus. Bull. cxxii. 74 (1908).—**Rotundifoliae**.—New York (type locality: Tuscarora).
- neobushii* Sargent, Trees and Shrubs, ii. 9 (1907).—**Intricatae**.—Illinois, Missouri (type locality: Monteer, Mo.).
- neocanbyi* Sargent in Proc. Acad. Nat. Sci. Phila. lvii. 638 (1905).—**Intricatae**.—Pennsylvania (type locality: between Stroudsburg and Tannersville).
- neofaxonii* Sargent in Jour. Arnold Arb. vi. 2 (1925).—**Coccineae**.—Massachusetts (type locality of *C. ampla* Sarg., which this name replaces: Lanesboro.)

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- neofluvialis* Ashe in Jour. Elisha Mitchell Sci. Soc. xvi. 71 (1900).—**Macracanthae**.—North Carolina, Virginia, West Virginia, Indiana (type locality not given).
- neolondinensis* Sargent, Man. Trees N. Am. 443 (1905).—**Coccineae**.—Connecticut (type locality: New London).
- neosmithii* Sargent in Jour. Arnold Arb. vi. 2 (1925).—**Pruinosae**.—Pennsylvania (type locality of *C. ignava* Sarg., which this name replaces: Bedford Springs).
- nescia* Sargent in N. Y. State Mus. Bull. cxxii. 100 (1908).—**Tenuifoliae**.—New York (type locality: Coopers Plains).
- nitens* Sargent in Rep. Missouri Bot. Gard. xxii. 76 (1912).—**Virides**.—Missouri (type locality: Hannibal).
- nitida* (Engelm.) Sargent in Bot. Gaz. xxxi. 231 (1901).—**Virides**.—Illinois, Missouri, Arkansas (type locality not given).
- nitidula* Sargent in Rep. Geol. Surv. Mich. 1906, 521 (1907).—**Punctatae**.—Michigan (type locality: Port Huron).
- noelensis* Sargent in Jour. Arnold Arb. i. 253 (1920).—**Molles**.—Missouri, Arkansas (type locality: Noel, Mo.).
- notabilis* Sargent in N. Y. State Mus. Bull. cxxii. 32 (1908).—**Punctatae**.—New York (type locality: Buffalo).
- × *notha* Sargent in Jour. Arnold Arb. iii. 9 (1922).—(*C. apiifolia* × *brachyphylla*).—Arkansas (type locality: McNab, Hempstead County).
- noveboracensis* Sargent in N. Y. State Mus. Bull. cxvi. Bot. x. 22 (1907).—**Rotundifoliae**.—New York (type locality: North Elba).
- nubicola* Beadle in Biltmore Bot. Studies, i. 126 (1902).—**Tenuifoliae**.—North Carolina (type locality: Mt. Pisgah, Alexander County).
- nuda* Sargent in Jour. Arnold Arb. iii. 10 (1922).—**Macracanthae**.—Missouri (type locality: Swan).
- nudiflora* Nuttall apud Torrey & Gray, Fl. N. Am. i. 468 (1840), as synonym of *C. aestivalis* T. & G.
- numerosa* Sargent in N. Y. State Mus. Bull. cxxii. 90 (1908).—**Pruinosae**.—New York (type locality: Coopers Plains).
- nupera* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 17 (1903).—**Molles**.—Illinois (type locality: Joliet). (?)
- nutans* Sargent in Rep. Geol. Surv. Mich. 1906, 544 (1907).—**Molles**.—Michigan (type locality: Port Huron).
- Oakesiana* Eggleston in Torrey, vii. 35 (1907).—**Rotundifoliae**.—Vermont (type locality: Bloomfield).
- obesa* Ashe in Jour. Elisha Mitchell Sci. Soc. xx. 47 (1904).—**Macracanthae**.—Missouri (type locality: St. Louis County). (?)
- oblita* Sargent in N. Y. State Mus. Bull. cxxii. 40 (1908).—**Pruinosae**.—New York (type locality: Buffalo).

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- oblongifolia* Sargent in N. Y. State Mus. Bull. cv. Bot. ix. 60 (1906) = *C. urbica* Sarg.
- obovatifolia* Roemer, Fam. Nat. Syn. iii. 120 (1847).—**Punctatae**.—(?)
- obscura* Sargent in Rep. Missouri Bot. Gard. xix. 119 (1908).—**Macracanthae**.—Missouri, Arkansas (type locality: Webb City, Mo.).
- obstipa* Sargent in N. Y. State Mus. Bull. clxvii. 80 (1913).—**Pruinosae**.—New York (type locality: Chapinville).
- obtecta* Ashe in Bot. Gaz. xxxiii. 233 (1902).—**Molles**.—Illinois (type locality not given). (?)
- occidentalis* Britton in Bull. N. Y. Bot. Gard. i. 448 (1900) = *C. succulenta* Schrad.?
- ogdensburgensis* Sargent in N. Y. State Mus. Bull. clxvii. 123 (1913).—**Macracanthae**.—New York (type locality: Ogdensburg).
- ohioensis* Sargent in Jour. Arnold Arb. iii. 183 (1922).—**Crus-galli**.—Ohio (type locality: Columbus).
- olida* Ashe in Jour. Elisha Mitchell Sci. Soc. xx. 56 (1904).—**Coccineae**.—Pennsylvania (type locality: Pyler Falls).
- olivacea* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 153 (1910) = *C. Fontanesiana* Steud.
- onusta* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 22 (1903).—**Pruinosae**.—Ohio (type locality: Mansfield).
- opaca* Hooker & Arnott in Comp. Bot. Mag. i. 25 (1835).—**Aestivales**.—Alabama, Mississippi, Louisiana, Texas (type locality not given).
- operta* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 29 (1903).—**Crus-galli**.—North Carolina, Tennessee (type locality not given). (?)
- opica* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 10 (1903).—**Macracanthae**.—Pennsylvania (type locality: Berks County).
- opima* Beadle in Biltmore Bot. Studies, i. 40 (1901).—**Pulcherrimae**.—Alabama, Florida (type locality: Greenville, Ala.).
- opulens* Sargent in Proc. Rochester Acad. Sci. iv. 104 (1903).—**Silvicolae**.—New York, Michigan (type locality: Rochester, N. Y.).
- ornata* Sargent in Proc. Rochester Acad. Sci. iv. 120 (1903).—**Tenuifoliae**.—Ontario, New York (type locality: Rochester, N. Y.).
- otiosa* Ashe in Jour. Elisha Mitchell Sci. Soc. xx. 48 (1904).—**Tenuifoliae**.—Michigan, Ohio (type locality: Summerville, Mich.).
- ovalifolia* Hornemann, Hort. Hafn. Suppl. 52 (1819), ex Sudworth, U. S. Dept. Agric. Div. For. xiv. 217 (1897), as synonym of *C. crus-galli prunellifolia* Sudw. = *C. prunifolia* Pers.?
- ovata* Sargent, Man. Trees N. Am. 402 (1905).—**Virides**.—Illinois, Missouri (type locality: Carondelet, Mo.).
- ovatifolia* Sargent in N. Y. State Mus. Bull. cxxii. 92 (1908).—**Pruinosae**.—New York (type locality: Coopers Plains).



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- pachyphylla* Sargent in Rep. Missouri Bot. Gard. xix. 54 (1908).—**Crus-galli**.—Missouri (type locality: Osage).
- pacifolia* Sargent in Jour. Elisha Mitchell Sci. Soc. xix. 20 (1903).—**Tenuifoliae**.—Wisconsin (type locality: Milwaukee). (?)
- Paddockeae* Sargent in Rhodora, vii. 202 (1905).—**Tenuifoliae**.—Vermont (type locality: Lyndonville).
- padifolia* Sargent, Trees and Shrubs, ii. 75 (1908).—**Intricatae**.—Missouri (type locality: Swan).
- padifolia* var. *incarnata* Sargent in Jour. Arnold Arb. vi. 4 (1925).—Missouri, Arkansas (type locality: Galena, Mo.).
- pagensis* Sargent in Jour. Arnold Arb. iv. 104 (1923).—**Intricatae**.—Oklahoma (type locality: Page).
- Paineana* Sargent in N. Y. State Mus. Bull. clxvii. 97 (1913).—**Tenuifoliae**.—New York (type locality: Herkimer).
- Painteriana* Sargent in Proc. Acad. Nat. Sci. Phila. lvii. 647 (1905).—**Intricatae**.—Pennsylvania (type locality: Newtown).
- pallens* Beadle in Biltmore Bot. Studies, i. 27 (1901).—**Intricatae**.—North Carolina (type locality: Biltmore).
- pallescens* Sargent in N. Y. State Mus. Bull. clxvii. 81 (1913).—**Pruinosa**.—New York (type locality: Ogdensburg).
- palliat* Sargent, Trees and Shrubs, ii. 236 (1913).—**Crus-galli**.—Missouri, Arkansas (type locality: Fulton, Ark.).
- pallidula* Sargent in Ontario Nat. Sci. Bull. iv. 36 (1908).—**Tenuifoliae**.—Ontario (type locality: Toronto).
- Palmeri* Sargent, Trees and Shrubs, i. 57 (1903).—**Crus-galli**.—Missouri, Kansas, Arkansas, Oklahoma (type locality: Webb City, Mo.).
- paludosa* Sargent, Trees and Shrubs, i. 15 (1902).—**Virides**.—Florida (type locality: Haw Creek, Volusia County).
- palustris* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. 13 (1900).—Group?—Indiana (type locality: Freeport). (?)
- panda* Beadle in Biltmore Bot. Studies, i. 89 (1902).—**Flavae**.—Florida (type locality: Tallahassee).
- panda* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 29 (1903).—Group?—North Carolina (type locality: Glendon). (?)
- paradoxa* Sargent in Rep. Missouri Bot. Gard. xxii. 68 (1912).—**Crus-galli**.—Missouri, Kansas, Arkansas (type locality: Joplin, Mo.).
- parca* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 19 (1903).—**Tenuifoliae**.—Wisconsin (type locality: Milwaukee). (?)
- parciflora* Sargent in Rep. Missouri Bot. Gard. xix. 60 (1908).—**Crus-galli**.—Missouri, Arkansas, Texas (type locality: Webb City, Mo.).
- Parkae* Sargent in Rep. Missouri Bot. Gard. xxii. 70 (1912).—**Crus-galli**.—Missouri (type locality: Springfield).
- Parryana* Eggleston in Bull. Torrey Bot. Club, xxxvi. 510 (1909).—Group?—Mexico (type locality: Alvarez, San Louis Potosi). (?)

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- parviflora* Sargent in Proc. Rochester Acad. Sci. iv. 117 (1903).—**Tenuifoliae**.—New York, Pennsylvania, Indiana (type locality: Rochester, N. Y.).
- parvifolia* Aiton, Hort. Kew. ii. 169 (1789) = *C. uniflora* Muench.
- parvifolia* var. *florida* (Lodd.) Loudon, Arb. Brit. ii. 842 (1838). (?)
- parviflora* var. *grossulariaefolia* (Lodd.) Loudon, Arb. Brit. ii. 842 (1838).—(?)
- parvula* Sargent in Rep. Geol. Surv. Mich. 1906, 527 (1907).—**Pruinosae**.—Michigan (type locality: Port Huron).
- pascens* Ashe in Jour. Elisha Mitchell Sci. Soc. xviii. 23 (1902).—**Rotundifoliae?**—Michigan, Wisconsin (type locality not given). (?)
- pastorum* Sargent in Rhodora, iii. 24 (1901).—**Tenuifoliae**.—New Hampshire, Massachusetts, Connecticut (type locality: Lancaster, Mass.).
- patrum* Sargent in Rep. Missouri Bot. Gard. xix. 95 (1908).—**Pruinosae**.—Iowa, Missouri, Arkansas (type locality: St. Louis, Mo.).
- paucispina* Sargent in Bot. Gaz. xxxv. 391 (1903).—**Tenuifoliae**.—Illinois (type locality: Maywood).
- pausiaca* Ashe in Ann. Carnegie Mus. i. 390 (1902).—**Punctatae**.—New York, Pennsylvania (type locality not given).
- Pearsonii* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. 10 (1900).—**Flavae?**—North Carolina (type locality: King's Mountain). (?)
- Pechiana* Sargent in Rep. Missouri Bot. Gard. xxii. 78 (1912).—**Virides**.—Illinois, Missouri (type locality: Hannibal, Mo.).
- Peckietta* Sargent in Rhodora, vii. 174 (1905).—**Macracanthae**.—New York (type locality: Piseco).
- Peckii* Sargent in Rhodora, v. 63 (1903).—**Intricatae**.—New York (type locality: Lansingburg).
- pedicellata* Sargent in Bot. Gaz. xxxi. 226 (1901).—**Coccineae**.—Ontario, New York, Pennsylvania (type locality: Rochester, N. Y.).
- pedicellata* var. *Ellwangeriana* (Sarg.) Eggleston in Rhodora, x. 82 (1908) = *C. Ellwangeriana*.
- pedicellata* var. *gloriosa* Sargent in Jour. Arnold Arb. i. 254 (1920).—**Coccineae**.—New York (type locality: Rochester).
- pelacris* Sargent in N. Y. State Mus. Bull. clxvii. 82 (1913).—**Pruinosae**.—New York (type locality: Olean).
- pellecta* Sargent in N. Y. State Mus. Bull. cxxii. 85 (1908).—**Pruinosae**.—New York (type locality: Coopers Plains).
- pellucidula* Sargent in Rhodora, vii. 179 (1905).—**Macracanthae**.—Connecticut (type locality: Litchfield).
- penita* Beadle in Biltmore Bot. Studies, i. 57 (1902).—**Virides**.—Tennessee (type locality: Chattanooga).
- pennsylvanica* Ashe in Ann. Carnegie Mus. i. 394 (1902).—**Molles**.—Pennsylvania (type locality: Berks County).

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- Pennypackeri* Sargent in Bot. Gaz. xxxv. 100 (1903).—**Crus-galli**.—Delaware (type locality: Stanton Station).
- pentandra* Sargent in Rhodora, III. 25 (1901).—**Tenuifoliae**.—Quebec, New England, New York (type locality: New Haven, Vt.).
- pentaneura* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 12 (1903).—**Uniflorae**.—New Jersey, North Carolina (type locality not given). (?)
- pentasperma* Ashe in Bot. Gaz. xxxv. 436 (1903).—Group?—North Carolina (type locality: Franklin). (?)
- peoriensis* Sargent in Bot. Gaz. xxxi. 5 (1901).—**Crus-galli**.—Illinois (type locality: Princeville, Peoria County).
- pequotorum* Sargent in Rhodora, v. 55 (1903).—**Pruinosae**.—Connecticut (type locality: Mumford's Point, Groton).
- peramoena* Sargent in Ontario Nat. Sci. Bull. iv. 89 (1908).—**Macracanthae**.—Ontario (type locality: London).
- perampla* Sargent in Rep. Geol. Surv. Mich. 1906, 525 (1907).—**Pruinosae**.—Michigan (type locality: Port Huron).
- perjucunda* Sargent in Ontario Nat. Sci. Bull. iv. 27 (1908).—**Pruinosae**.—Ontario, New York (type locality: London, Ont.).
- perlaeta* Sargent in Rep. Geol. Surv. Mich. 1906, 541 (1907).—**Tenuifoliae**.—Michigan (type locality: Grand Rapids).
- perlevis* Ashe in Jour. Elisha Mitchell Sci. Soc. xx. 48 (1904).—**Tenuifoliae**.—Pennsylvania (type locality: Kutztown).
- permera* Sargent in Rep. Missouri Bot. Gard. xix. 65 (1908).—**Crus-galli**.—Missouri, Arkansas (type locality: Monteer, Mo.).
- perrara* Sargent in N. Y. State Mus. Bull. CLXVII. 103 (1913).—**Coccineae**.—New York (type locality: Chapinville).
- persimilis* Sargent in Proc. Rochester Acad. Sci. iv. 94 (1903).—**Crus-galli**.—New York (type locality: Rochester).
- persistens* Sargent, Trees and Shrubs, II. 233 (1913).—**Crus-galli**.—Known only in cultivation (type locality: Arnold Arboretum, from seed received from Museum d'Histoire Naturelle, Paris, of unknown origin).
- perspicabilis* Sargent in N. Y. State Mus. Bull. CLXVII. 90 (1913).—**Silvicolae**.—New York (type locality: Salamanca).
- pertomentosa* Ashe in Jour. Elisha Mitchell Sci. Soc. xvi. 70 (1900).—**Macracanthae**.—Missouri, Kansas (type locality: Johnson County, Kan.).
- pexa* Beadle in Biltmore Bot. Studies, I. 116 (1902).—**Flavae**.—North Carolina (type locality: Salisbury).
- Phaenopyrum* (L.f.) Medicus, Gesch. Bot. 83 (1793).—**Microcarpae**.—North Carolina, Tennessee, Kentucky, Illinois and Missouri (type locality not given).



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- phaneroneura* Sargent in Jour. Arnold Arb. III. 2 (1922).—**Crus-galli**.—Missouri (type locality: Clarksville).
- philadelphica* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 588 (1905).—**Pruinosae**.—Pennsylvania (type locality: West Philadelphia).
- phlebodia* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 155 (1910).—**Crus-galli**.—Pennsylvania (type locality: Bedford Springs).
- picta* Sargent in Ontario Nat. Sci. Bull. IV. 91 (1908).—**Macracanthae**.—Ontario (type locality: Toronto).
- pilifera* Sargent in Rep. Missouri Bot. Gard. XIX. 64 (1908).—**Crus-galli**.—Illinois, Missouri, Arkansas (type locality: Swan, Mo.).
- pilosa* Sargent in Rhodora, V. 56 (1903).—**Pruinosae**.—Massachusetts (type locality: Lancaster).
- pinetorum* Beadle in Bot. Gaz. XXX. 343 (1900).—**Pulcherrimae**.—Alabama (type locality: Albertsville).
- pinguis* Sargent in Rep. Geol. Surv. Mich. 1906, 559 (1907).—**Anomalae**.—Michigan (type locality: Lowell, Kent County).
- Pinshow* Hort. ex Nicholson in Hand-list Arb. Kew, pt. 1. 211 (1894), as synonym of *C. uniflora* Muench.
- Piperi* Britton in Torreya, I. 55 (1901).—**Douglasianae**.—Washington, Oregon, Idaho (type locality: Pullman, Wash.).
- pisifera* Sargent in Rhodora, VII. 163 (1905).—**Macracanthae**.—Ontario, Vermont, Massachusetts (type locality: Cornwall, Vt.).
- placens* Sargent, Trees and Shrubs, II. 243 (1913).—**Molles**.—Ontario, Michigan (type locality: Walpole Island, Lamberton County, Ont.).
- placiva* Sargent in Ontario Nat. Sci. Bull. IV. 22 (1908).—**Pruinosae**.—Ontario, New York, Michigan (type locality: Buffalo, N. Y.).
- plana* Sargent in N. Y. State Mus. Bull. CXXII. 45 (1908).—**Pruinosae**.—New York (type locality: Buffalo).
- platycarpa* Sargent in Rep. Missouri Bot. Gard. XIX. 92 (1908).—**Pruinosae**.—Illinois, Missouri, Arkansas (type locality: Moark, Ark.).
- poliophylla* Sargent in Jour. Arnold Arb. III. 185 (1922).—**Virides**.—Texas (type locality: Columbia).
- polita* Sargent in Rhodora, V. 111 (1903).—**Coccineae**.—Massachusetts, Connecticut, New York (type locality: East Lyme, Ct.).
- polita* var. *Tatnalliana* (Sarg.) Eggleston in Rhodora, X. 82 (1908) = *C. Tatnalliana*.
- polybracteata* Ashe in Jour. Elisha Mitchell Sci. Soc. XVI. 79 (1900).—**Rotundifoliae**.—New York, Ohio (type locality: Sugar Grove, O.).
- polyclada* Sargent in Rep. Missouri Bot. Gard. XXII. 72 (1912).—**Crus-galli**.—Missouri (type locality: Springfield).
- populifolia* Walter, Fl. Car. 147 (1788) = *C. Phaenopyrum* Medic.
- populnea* Ashe in Ann. Carnegie Mus. I. 395 (1902).—**Tenuifoliae**.—Pennsylvania (type locality: Berks County).

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- porracea* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. pt. 2, 19 (1901).—**Tenuifoliae**.—Pennsylvania, New York (type locality: Susquehanna, Pa.). (?)
- porrecta* Ashe in Ann. Carnegie Mus. i. 391 (1902).—**Punctatae**.—Pennsylvania (type locality: Pittsburgh).
- Porteri* Britton in Bull. N. Y. Bot. Gard. i. 448 (1900).—**Pruinosae**.—Pennsylvania (type locality: Tannersville).
- praeclara* Sargent in Ontario Nat. Sci. Bull. iv. 97 (1908).—**Macracanthae**.—Ontario (type locality: Toronto).
- praecoqua* Sargent in Rhodora, v. 167 (1903).—**Rotundifoliae**.—Quebec, northern New England and New York, west to Wisconsin and northern Illinois (type locality: Crown Point, N. Y.).
- praecox* Sargent in Rhodora, iii. 27 (1901) = *C. praecoqua* Sarg.
- praestans* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 163 (1910).—**Punctatae**.—Pennsylvania (type locality: Nine Mile Run, near Pittsburgh).
- praetermissa* Sargent in Rhodora, vii. 213 (1905).—**Rotundifoliae**.—Vermont (type locality: Ferrisburg).
- pratensis* Sargent in Bot. Gaz. xxxi. 6 (1901).—**Punctatae**.—Illinois (type locality: Wady Petra).
- premora* Ashe in Ann. Carnegie Mus. i. 391 (1902).—**Intricatae**.—Pennsylvania (type locality: eastern part of Berks County).
- Pringlei* Sargent in Rhodora, iii. 21 (1901).—**Coccineae**.—Ontario, New England, New York, Wisconsin, northern Illinois and Ohio (type locality: Charlotte, Vt.).
- Pringlei* var. *exclusa* (Sarg.) Eggleston in Rhodora, x. 82 (1908) = *C. exclusa*.
- Pringlei* var. *lobulata* (Sarg.) Eggleston in Rhodora, x. 82 (1908) = *C. lobulata*.
- prinoides* Sargent in Ontario Nat. Sci. Bull. iv. 81 (1908).—**Macracanthae**.—Ontario (type locality: Sarnia).
- prismatica* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. pt. 2, 15 (1901).—Group?—North Carolina (type locality: Madison County). (?)
- priva* Ashe in Bull. Charleston Mus. xii. 42 (1916).—Group?—South Carolina (type locality: "south end of Piedmont"). (?)
- procax* Ashe in Bull. Charleston Mus. xii. 42 (1916).—**Crus-galli**.—South Carolina (type locality not given).
- procera* Sargent, Trees and Shrubs, ii. 71 (1908).—**Pruinosae**.—New York, Pennsylvania (type locality: Hemlock, N. Y.).
- Proctoriana* Sargent in N. Y. State Mus. Bull. clxvii. 110 (1913).—**Rotundifoliae**.—New York (type locality: Utica).
- prominens* Sargent in Ontario Nat. Sci. Bull. iv. 23 (1908).—**Pruinosae**.—Ontario, New York (type locality: Toronto, Ont.).

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- promissa* Sargent in N. Y. State Mus. Bull. cxxii. 50 (1908).—**Silvicolae**.—Ontario, New York, Vermont, Michigan (type locality: Niagara Falls, N. Y.).
- prona* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 17 (1903).—**Silvicolae**.—Michigan, Ohio (type locality: Port Huron, Mich.).
- propensa* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 214 (1910).—**Tenuifoliae**.—Pennsylvania (type locality: Keyser Valley, Scranton).
- propinqua* Ashe in Jour. Elisha Mitchell Sci. Soc. xx. 53 (1904).—**Tenuifoliae**.—Ohio (type locality: Milan).
- propixa* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 248 (1910).—**Macracanthae**.—Pennsylvania (type locality: Scranton).
- propria* Sargent in Rhodora, vii. 214 (1905).—**Rotundifoliae**.—Massachusetts (type locality: South Lancaster).
- pruinosa* (Wendl.) K. Koch, Hort. Dendr. 168 (1853).—**Pruinosae**.—Ontario, New England and New York, south to Delaware, west to New York, Ohio, Indiana and northern Illinois (type locality of *Mespilus pruinosa* Wendland not given).
- pruinosa* var. *conjuncta* (Sarg.) Eggleston in Rhodora, x. 81 (1908) = *C. conjuncta*.
- pruinosa* f. *dissona* (Sarg.) Eggleston in Rhodora, x. 81 (1908) = *C. dissona*.
- pruinosa* var. *latisepala* (Ashe) Eggleston in Rhodora, x. 81 (1908) = *C. latisepala*.
- pruinosa* var. *philadelphica* (Sarg.) Eggleston in Rhodora, x. 81 (1908) = *C. philadelphica*.
- pruinosa* var. *Porteri* (Britton) Eggleston in Rhodora, x. 81 (1908) = *C. Porteri*.
- pruinosa* × *punctata* Eggleston in N. Y. State Mus. Bull. ccxliii-iv. 64 (1923). (?)
- pruinosa* × *straminea* Eggleston in N. Y. State Mus. Bull. ccliv. 422 (1924). (?)
- prunellifolia* Bosc in DeCandolle, Prodr. ii. 627 (1825) = *C. prunifolia* Pers. ?
- prunifolia* (Marsh.) Persoon, Syn. ii. 37 (1807).—**Macracanthae?**—Known only in cultivation.
- prunifolia* var. *ingestria* (Lodd.) Loudon, Arb. Brit. ii. 821 (1838) = *C. prunifolia* Pers. (?)
- puberis* Sargent in N. Y. State Mus. Bull. cxxii. 73 (1908).—**Rotundifoliae**.—New York (type locality: Belfast).
- pubescens* (H.B.K.) Steudel, Nomencl. Bot. ed. 2, 433 (1841).—Mexico (type locality: Real de Moran, Hidalgo).
- pubescens* var. *Botterii* Eggleston in Bull. Torrey Bot. Club, xxxvi. 506 (1909).—Mexico (type locality: Orizaba). (?)
- pubescens* f. *Humboldtii* Stapf in Kew Bull. Misc. Inform. 1914, 8, 293 (1914).—Mexico (type region: San Luis Potosi to Federal Dist.). (?)



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- pubescens* f. *stipulacea* (Lodd.) Stapf in Kew Bull. Misc. Inform. 1914, 8, 293 (1914).—Mexico (type region: Federal District).
- pubifolia* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 114 (1900).—**Macracanthae**.—Michigan, Indiana, Iowa (type locality: "Middle Iowa").
- pubipes* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 114 (1900).—**Macracanthae**.—Minnesota (type locality: "northeastern Minnesota").
- pudens* Sargent in Rep. Missouri Bot. Gard. XIX. 122 (1908).—**Macracanthae**.—Missouri (type locality: Monteer).
- pulcherrima* Ashe in Jour. Elisha Mitchell Sci. Soc. XVI. 77 (1900).—**Pulcherrimae**.—Florida, Georgia (type locality not given).
- pulchra* Sargent in N. Y. State Mus. Bull. CXXII. 42 (1908).—**Pruinosae**.—New York, Pennsylvania (type locality: Niagara Falls, N. Y.).
- pulla* Beadle in Biltmore Bot. Studies, I. 96 (1902).—**Flavae**.—Mississippi (type locality: Columbus). (?)
- pumila* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 612 (1905).—**Tenuifoliae**.—Pennsylvania (type locality: Sellersville).
- punctata* Jacquin, Hort. Vind. I. 10 (1770).—**Punctatae**.—Southeastern Canada, New England and New York, south to North Carolina and Georgia, west to Minnesota, Iowa, Kentucky and Tennessee (type locality: cultivated in Botanical Garden, Vienna).
- punctata* var. *aurea* Aiton, Hort. Kew. II. 170 (1789).—Ontario, New York, Pennsylvania, Ohio (type locality: Inverary Castle, Scotland? "Cultivated 1746 by Archibald, Duke of Argyle").
- punctata* β. *brevispina* (Douglas) Hooker, Fl. Bor. Am. I. 201 (1834), *nomen nudum* = *C. Douglasii* Lindl.
- punctata* var. *canescens* Britton in Bull. Torrey Bot. Club. XXI. 231 (1894).—Pennsylvania (type locality: Easton).
- punctata lobata* Hort. ex Zabel in Beissner Schelle & Zabel, Handb. Laubholz-Ben. 171 (1903), *nomen nudum*.
- punctata* var. *microphylla* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 159 (1910).—Pennsylvania (type locality: Linesville).
- punctata* var. *mutabilis* Gruber in Bull. Torrey Bot. Club, XXXII. 390 (1905).—Pennsylvania (type locality: Kutztown). (?)
- punctata* var. *rubra* Aiton, Hort. Kew. II. 170 (1789) = *C. punctata* Jacq.
- punctata* var. *xanthocarpa* (Medic.) Lavallée, Arb. Segrez. I. 53 (1880) = *C. punctata* var. *aurea* Ait.
- punctata* × *succulenta* Eggleston in N. Y. State Mus. Bull. CCXLIII-IV. 63 (1923). (?)
- pura* Sargent in Rep. Geol. Surv. Mich. 1906, 549 (1907).—**Coccineae**.—Michigan (type locality: Grand Rapids).
- pusilla* Sargent in Rep. Geol. Surv. Mich. 1906, 553 (1907).—**Intricatae**.—Michigan (type locality: Grand Rapids).

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- puta* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 192 (1910).—**Silvicolae**.—Pennsylvania (type locality: Scranton).
- putata* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 244 (1910).—**Anomalae**.—Pennsylvania (type locality: Virginia, near Scranton).
- Putnamiana* Sargent in Jour. Arnold Arb. IV. 102 (1923).—**Coccineae**.—Ohio (type locality: Marietta).
- pygmaea* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 650 (1905).—**Intricatae**.—Pennsylvania (type locality: Sellersville).
- pyracanthifolia* (Ait.) Sweet, Hort. Brit. ed. 3. 209 (1839) = *C. crusgalli* var. *pyracanthifolia*.
- pyracanthoides* Beadle in Biltmore Bot. Studies, I. 136 (1902).—**Crusgalli**.—Florida (type locality: Marianna).
- pyramidata* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 196 (1910).—**Silvicolae**.—Pennsylvania (type locality: Scranton).
- pyrifolia* Aiton, Hort. Kew. II. 168 (1789).—**Macracanthae** = *C. tomentosa* L. ?
- pyrifolia*  $\beta$ . *aurantiaca* Lange, Rev. Gen. Crat. 82 (1897).—**Macracanthae**.—(?)
- pyrifolia* var. *sylvestris* Schuette in Proc. Biol. Soc. Washington. xvi. 96 (1903).—Group?—Northwestern Wisconsin. (?)
- pyriformis* Britton in Bull. N. Y. Bot. Gard. I. 449 (1900) = *C. dispessa* Ashe.
- quaesita* Beadle in Biltmore Bot. Studies, I. 33 (1901).—**Flavae**.—Florida (type locality: River Junction). (?)
- quercina* Ashe in Jour. Elisha Mitchell Sci. Soc. XVIII. 27 (1902).—**Molles**.—Texas (type locality of *C. columbiana* Sarg., which this name replaces: Columbia).
- quinebaugensis* Sargent in Rhodora, VII. 194 (1905).—**Pruinosae**.—Connecticut (type locality: Hopeville).
- radians* Sargent in N. Y. State Mus. Bull. CXXII. 64 (1908).—**Molles**.—New York (type locality: Rochester).
- radiata* Loddiges, Cat. 39 (1826).—Loudon, Arb. Brit. 819 (1838) as a synonym of *C. pyrifolia* Ait.
- radiata* Sargent in N. Y. State Mus. Bull. CXXII. 42 (1908).—**Pruinosae**.—Ontario, New York (type locality: Buffalo, N. Y.).
- radina* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 203 (1910).—**Silvicolae**.—Pennsylvania (type locality: Schenley Park, Pittsburgh).
- radiosa* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 657 (1905).—**Macracanthae**.—Pennsylvania (type locality: Upper Darby, Delaware County).
- raleighensis* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 112 (1900).—**Uniflorae**.—North Carolina (type locality: Raleigh).

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- ramosa* Sargent in N. Y. State Mus. Bull. cxxii. 86 (1908).—**Pruinosae**.—New York (type locality: Coopers Plains).
- Randiana* Sargent in Rhodora, v. 142 (1903).—**Tenuifoliae**.—Nova Scotia, Maine (type locality: Bar Harbor, Me.).
- rara* Sargent, Trees and Shrubs, II. 241 (1913).—**Pruinosae**.—Connecticut (type locality: Hopeville).
- rava* Beadle in Biltmore Bot. Studies, I. 91 (1902).—**Flavae**.—Florida (type locality: Tallahassee).
- Ravenelii* Sargent in Bot. Gaz. xxxiii. 122 (1902).—**Flavae**.—South Carolina, Georgia (type locality: Augusta, Ga.).
- ravida* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. pt. 2, 6 (1901).—Group?—Tennessee (type locality: Clarkton). (?)
- recedens* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 161 (1910).—**Punctatae**.—Pennsylvania (type locality: Kutztown).
- recordabilis* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 199 (1910).—**Silvicolae**.—Pennsylvania (type locality: Kittanning).
- recta* Sargent in N. Y. State Mus. Bull. cxxii. 97 (1908).—**Tenuifoliae**.—New York (type locality: Coopers Plains).
- recurva* Beadle in Biltmore Bot. Studies, I. 106 (1902).—**Flavae**.—Florida (type locality: Ocala).
- redolens* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 14 (1903).—**Molles**.—Iowa, Wisconsin, Minnesota (type locality not given). (?)
- regalis* Beadle in Biltmore Bot. Studies, I. 134 (1902).—**Crus-galli**.—Georgia, Alabama, Mississippi, Arkansas (type locality: Rome, Ga.).
- relicta* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 177 (1910).—**Pruinosae**.—Pennsylvania, Ohio (type locality: Orbisonia, Pa.).
- remota* Sargent, Trees and Shrubs, II. 241 (1913).—**Pruinosae**.—Michigan (type locality: Grand Rapids).
- repentina* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 226 (1910).—**Rotundifoliae**.—Pennsylvania, Ohio (type locality: Bedford, Pa.).
- repulsans* Sargent in N. Y. State Mus. Bull. cxxii. 107 (1908).—**Anomalae**.—New York (type locality: Coopers Plains).
- resecta* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 23 (1903).—**Intricatae**.—North Carolina (type locality: Marion). (?)
- reses* Ashe in Jour. Elisha Mitchell Sci. Soc. xx. 55 (1904).—**Intricatae**.—Pennsylvania (type locality: Berks County).
- resima* Beadle in Biltmore Bot. Studies, I. 110 (1902).—**Flavae**.—Georgia (type locality: Albany).
- retrusa* Ashe in Jour. Elisha Mitchell Sci. Soc. xx. 49 (1904).—**Tenuifoliae**.—Michigan (type locality: Summerville).
- Reverchonii* Sargent, Trees and Shrubs, I. 55 (1903).—**Crus-galli**.—Texas (type locality: Dallas).



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- rhodella* Ashe in Jour. Elisha Mitchell Sci. Soc. xviii. 19 (1902).—**Uniflorae**.—North Carolina, Tennessee (type locality: Franklin, N. Car.).
- rhombifolia* Sargent in Rhodora, v. 183 (1903).—**Macracanthae**.—Canada, New England, New York (type locality: Trading Cove, Norwich, Ct.).
- Ridgwayi* Sargent in Jour. Arnold Arb. vi. 2 (1925).—**Molles**.—Southern Illinois (type locality: Olney).
- rigens* Beadle in Biltmore Bot. Studies, i. 54 (1902).—**Punctatae**.—Georgia, Alabama, Tennessee (type locality: Gadsden, Ala.).
- rigida* Sargent in Rep. Missouri Bot. Gard. xix. 99 (1908).—**Pruinosae**.—Missouri (type locality: Pacific).
- rimosa* Beadle in Biltmore Bot. Studies, i. 107 (1902).—**Flavae**.—Florida (type locality: Citra).
- riparia* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. 11 (1900).—**Silvicolae**.—North Carolina (type locality: Swain County).
- rivalis* Sargent in Proc. Acad. Nat. Sci. Phila. lvii. 580 (1905).—**Crusgalli**.—Pennsylvania, Ohio (type locality: Sellersville, Pa.).
- rivularis* Nuttall apud Torrey & Gray, Fl. N. Am. i. 464 (1840).—**Douglasianae**.—Idaho, Wyoming, Colorado, Utah, Nevada (type locality: "Oregon, along rivulets in the Rocky Mountains").
- roanensis* Ashe in Bull. N. Car. Exper. Sta. clxxv. 114 (1900).—**Tenuifoliae**.—Virginia, North Carolina, West Virginia, Tennessee (type locality: Roan Mountain, N. Car.).
- Robbinsiana* Sargent in Rhodora, vii. 197 (1905) = *C. diffusa* Sarg.
- Robesoniana* Sargent in Rhodora, v. 110 (1903).—**Molles**.—Ontario, Massachusetts, New York, Pennsylvania (type locality: Lenox, Mass.).
- Robinsonii* Sargent in Rhodora, v. 184 (1903).—**Macracanthae**.—Nova Scotia (type locality: Lock Broom, near Pictou).
- robur* Beadle in Biltmore Bot. Studies, i. 69 (1902).—**Pulcherrimae**.—Florida (type locality: Tallahassee).
- robusta* Sargent in N. Y. State Mus. Bull. cxxii. 28 (1908).—**Crusgalli**.—New York (type locality: Niagara Falls).
- roribacca* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. 4 (1900).—Group?—North Carolina (type locality: "Oconaluftee River, in the mountains of North Carolina"). (?)
- Rosei* Eggleston in Bull. Torr. Bot. Club, xxxvi. 509 (1909).—Mexico (type locality: Alvarez, San Luis Potosi).
- rotunda* Sargent in Rep. Missouri Bot. Gard. xix. 59 (1908).—**Crusgalli**.—Missouri (type locality: Webb City).
- rotundata* Sargent in Ontario Nat. Sci. Bull. iv. 61 (1908).—**Rotundifoliae**.—Ontario (type locality: London).

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- rotundifolia* Moench, Bäume Weiss. 29 (1785).—**Rotundifoliae**.—Nova Scotia and New England, west to New York, Pennsylvania, Michigan and Saskatchewan (type locality not given).
- rotundifolia* var. *aboriginum* Sargent in Jour. Arnold Arb. III. 196 (1922).—Quebec (type locality: Caughnawaga).
- rotundifolia* var. *Bicknellii* Eggleston in Rhodora, x. 79 (1908) = *C. Bicknellii*.
- rotundifolia* var. *chrysocarpa* (Ashe) Eggleston in Rhodora, x. 79 (1908) = *C. chrysocarpa*.
- rotundifolia* var. *Faxonii* (Sarg.) Eggleston in Rhodora, x. 79 (1908) = *C. Faxonii*.
- rotundifolia* a. *minor* Dippel, Handb. Laubholzk. III. 440 (1893). (?)
- rotundifolia* var. *pubera* Sargent in Rhodora XI. 183 (1909).—South-eastern Canada, New England and New York, west to Wisconsin and Minnesota (type locality not given).
- rotundifolia* f. *rubescens* Sargent in Jour. Arnold Arb. III. 197 (1922).—Quebec (type locality: St. Anne, Montreal Island).
- rotundifolia* b. *succulenta* (Schräd.) Dippel, Handb. Laubholzk. III. 441 (1893) = *C. succulenta*.
- rubella* Beadle in Bot. Gaz. xxx. 344 (1900).—**Intricatae**.—Virginia, West Virginia, North Carolina, Alabama and Tennessee (type locality: Valleyhead, Ala.).
- rubescens* Ashe in Bull. N. Car. Exper. Sta. CLXXV. 111 (1900).—**Intricatae**.—Alabama (type locality: Auburn). (?)
- rubicunda* Sargent in Proc. Rochester Acad. Sci. IV. 121 (1903).—**Tenuifoliae**.—Ontario, New York, Ohio (type locality: Rochester, N. Y.).
- rubicundula* Sargent, Trees and Shrubs, II. 7 (1907).—**Pruinosae**.—Missouri (type locality: Carondelet).
- rubrifolia* Sargent in Rep. Missouri Bot. Gard. XIX. 66 (1908).—**Crusgalli**.—Missouri, Kansas (type locality: Webb City, Mo.).
- rubrisepala* Sargent in Rep. Missouri Bot. Gard. XIX. 70 (1908).—**Crusgalli**.—Missouri (type locality: Joplin).
- rubrocarnea* Sargent in N. Y. State Mus. Bull. CV. Bot. IX. 55 (1906).—**Tenuifoliae**.—New York (type locality: North Albany).
- rubro-lutea* Sargent in N. Y. State Mus. Bull. CXXII. 88 (1908).—**Pruinosae**.—New York (type locality: Coopers Plains).
- rudis* Sargent in Rep. Missouri Bot. Gard. XIX. 71 (1908).—**Crusgalli**.—Missouri (type locality: Monteer).
- rufipes* Ashe in Jour. Elisha Mitchell Sci. Soc. XX. 51 (1904).—**Tenuifoliae**.—Pennsylvania (type locality: Berks County).
- rufula* Sargent in Jour. Arnold Arb. I. 251 (1920).—**Aestivales**.—North Carolina, Florida, Georgia, Alabama (type locality not given).

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- rugosa* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. V. (1900).—Group?—North Carolina (type locality not given). (?)
- rupestris* Ashe in Jour. Elisha Mitchell Sci. Soc. xviii. 27 (1902) = *C. densiflora* Sarg.\*
- rupicola* Sargent in Rep. Missouri Bot. Gard. xix. 121 (1908).—**Macracanthae**.—Missouri (type locality: Swan).
- ruvicola* Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 206 (1910).—**Silvicolae**.—Pennsylvania (type locality: Chadsford.)
- russata* Sargent in N. Y. State Mus. Bull. clxvii. 85 (1913).—**Pruinosae**.—New York (type locality: Painted Post, Steuben County).
- rustica* Beadle in Biltmore Bot. Studies, i. 122 (1902).—**Pruinosae**.—North Carolina, West Virginia (type locality: Biltmore, N. Car.).
- Ruthiana* Sargent in Acad. Nat. Sci. Phila. lvii. 591 (1905).—**Pruinosae**.—Pennsylvania (type locality: Durham).
- rutila* Sargent in Bot. Gaz. xxxv. 399 (1903).—**Macracanthae**.—Ohio, Indiana, Wisconsin, Illinois (type locality: Chicago Heights, Ill.).
- saeva* Sargent in Ontario Nat. Sci. Bull. iv. 94 (1908).—**Macracanthae**.—Ontario (type locality: Toronto).
- salicifolia* Medicus, Bot. Beob. ii. 345 (1782) = *C. crus-galli* var. *pyracanthifolia* Ait.?
- salicifolia* var. *Buistii* (Koch) Lange, Rev. Gen. Crat. 63 (1897), as synonym of *C. Fontanesiana* a. *latifolia*. (?)
- saligna* Greene in Pittonia, iii. 99 (1896).—**Brachyacanthae**.—Colorado (type locality: "along lower Cimarron River").
- sanguinea* Torrey & Gray, Fl. N. Am. i. 464 (1840), not Pallas.—**Macracanthae**. (?)
- sanguinea*  $\beta$ . *Douglasii* (Lindl.) Torrey & Gray, Fl. N. Am. i. 464 (1840) = *C. Douglasii*.
- Sargentii* Beadle in Bot. Gaz. xxviii. 407 (1899).—**Intricatae**.—Georgia, Alabama, Tennessee (type locality: Valleyhead, Ala.).
- sarniensis* Sargent in Ontario Nat. Sci. Bull. iv. 34 (1908).—**Tenuifoliae**.—Ontario (type locality: Sarnia).
- saturata* Sargent in Proc. Acad. Nat. Sci. Phila. lvii. 619 (1905).—**Tenuifoliae**.—Pennsylvania (type locality: Sellersville).
- Saundersiana* Sargent in Ontario Nat. Sci. Bull. iv. 66 (1908).—**Anomaleae**.—Ontario, New York, Ohio (type locality: London, Ont.).
- sauratonae* Ashe in Bot. Gaz. xxviii. 270 (1899).—**Punctatae**.—North Carolina (type locality: "along streams in the Sauraton Mountains"). (?)

\* This name was proposed by Mr. Ashe to replace *Crataegus densiflora* Sargent for the reason, as he states, that the latter had been previously used in the genus (Desf. ex K. Koch, Dendr. I. 186, as a synonym). However, Desfontaines does not appear to have made such a combination, the error apparently having been made by Koch in transcribing from Spach (Hist. Vég. ii. 88). Since the name *Crataegus densiflora* Desf. is thus not a valid name and has no standing, Sargent's specific name must be maintained.



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- saxatilis Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 640 (1905).—**Intricatae**.—Pennsylvania (type locality: Newtown).
- scabera Sargent, Trees and Shrubs, II. 245 (1913).—**Macracanthae**.—Missouri (type locality: Pleasant Grove).
- scabra Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 242 (1910).—**Intricatae**.—Pennsylvania (type locality: Orbisonia).
- scabrida Sargent in Rhodora, III. 29 (1901).—**Anomalae**.—Southeastern Canada, New England, New York, Pennsylvania (type locality: Middlebury, Vt.).
- scabriuscula Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 605 (1905).—**Pruinosae**.—Pennsylvania (type locality: Durham).
- schizophylla Eggleston in Bull. Torrey Bot. Club, XXXVIII. 243 (1911).—**Crus-galli**.—Massachusetts (type locality: Martha's Vineyard).
- Schneckii Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. 8 (1900).—**Virides**.—Illinois (type locality: Lawrenceville). (?)
- Schuettei Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. pt. 2, 7 (1901).—**Tenuifoliae**.—Wisconsin (type locality: Green Bay).
- Schweinitziana Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 652 (1905).—**Intricatae**.—Pennsylvania (type locality: Sellersville).
- scitula Sargent in N. Y. State Mus. Bull. CLXVII. 84 (1913).—**Pruinosae**.—New York (type locality: Chapinville).
- scopulorum Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 227 (1910).—**Rotundifoliae**.—Pennsylvania (type locality: Campbell's Ledge, Luzerne County).
- Searsii Sargent in Rhodora, VII. 183 (1905).—**Macracanthae**.—Massachusetts (type locality: Southboro).
- seclusa Sargent, Trees and Shrubs, II. 239 (1913).—**Pruinosae**.—Missouri, Arkansas (type locality: Pleasant Grove).
- seclusa Sargent in N. Y. State Mus. Bull. CLXVII. 89 (1913) = *C. iterata* Sarg.
- secta Sargent in Rep. Missouri Bot. Gard. XIX. 83 (1908).—**Punctatae**.—Missouri, Kansas, Arkansas (type locality: Carthage, Mo.).
- sectilis Ashe in Jour. Elisha Mitchell Sci. Soc. XIX. 23 (1903).—**Silvicolae**.—North Carolina (type locality: Marion). (?)
- seducta Sargent in Rep. Missouri Bot. Gard. XXII. 79 (1912).—**Pruinosae**.—Missouri, Arkansas (type locality: Noel, Mo.).
- Seelyana Sargent in Rhodora, VII. 209 (1905).—**Anomalae**.—Vermont (type locality: Middlebury).
- segnis Beadle in Biltmore Bot. Studies, I. 32 (1901).—**Flavae**.—Alabama (type locality: Greenville).
- sejuncta Sargent in N. Y. State Mus. Bull. CV. Bot. IX. 62 (1906).—**Coccineae**.—Ontario, New England and New York, west to Ohio and Indiana (type locality: Albany, N. Y.).

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- senta Beadle in Bot. Gaz. xxx. 341 (1900).—**Flavae**.—North Carolina (type locality: Biltmore).
- seuax Ashe in Jour. Elisha Mitchell Sci. Soc. xx. 50 (1904).—**Tenuifoliae**.—Pennsylvania (type locality: Berks County).
- sera Sargent in Bot. Gaz. xxxiii. 115 (1902).—**Molles**.—Ontario, Michigan, Wisconsin, Illinois (type locality: Joilet, Ill.).
- serena Sargent in Rhodora, vii. 201 (1905).—**Tenuifoliae**.—Massachusetts (type locality: Lenox).
- sertata Sargent in Bot. Gaz. xxxv. 381 (1903).—**Coccineae**.—Wisconsin, Indiana, Illinois (type locality: "northern Illinois").
- setosa Sargent in Rep. Missouri Bot. Gard. xix. 72 (1908).—**Crusgalli**.—Missouri (type locality: Grandin).
- severa Sargent, Trees and Shrubs, ii. 59 (1908).—**Crusgalli**.—Missouri (type locality: Grandin).
- sextilis Sargent in Bot. Gaz. xxxv. 390 (1903).—**Tenuifoliae**.—Illinois (type locality: Thatcher's Park, Cook County).
- Shaferi Ashe in Ann. Carnegie Mus. i. 397 (1902).—**Pruinosae**.—Pennsylvania (type locality: Carnot).
- Shallotte Ashe in Bull. N. Car. Exper. Sta. clxxv. 113 (1900).—**Macracanthae**.—North Carolina (type locality: Scranton). (?)
- sheridana Nelson in Bot. Gaz. xxxiv. 370 (1902).—**Macracanthae**.—Wyoming (type locality: Sheridan). (?)
- shirleyensis Sargent, Trees and Shrubs, ii. 244 (1913).—**Anomalae**.—Massachusetts (type locality: Shirley).
- sicca Sargent in Rep. Missouri Bot. Gard. xix. 101 (1908).—**Pruinosae**.—Missouri (type locality: Pacific).
- siderea Sargent in Proc. Acad. Nat. Sci. Phila. lxii. 212 (1910).—**Tenuifoliae**.—Pennsylvania (type locality: Schenley Park, Pittsburgh).
- signata Beadle in Biltmore Bot. Studies, i. 42 (1901).—**Crusgalli**.—Alabama, Mississippi (type locality: Mobile, Ala.).
- silvestris Sargent in Ontario Nat. Sci. Bull. iv. 15 (1908).—**Punctatae**.—Ontario (type locality: London).
- silvicola* Beadle in Bot. Gaz. xxviii. 414 (1899) = *C. drymophila* Sarg.
- silvicola* var. *Beckwithae* (Sarg.) Eggleston in Rhodora, x. 81 (1908) = *C. Beckwithae* Sarg.
- simulans Sargent in N. Y. State Mus. Bull. cxxii. 125 (1908).—**Anomalae**.—New York (type locality: Hemlock Lake, Livingston County).
- simulata Sargent in Rep. Missouri Bot. Gard. xxii. 82 (1912).—**Macracanthae**.—Missouri (type locality: Joplin).
- singularis* Sargent in N. Y. State Mus. Bull. cxxii. 106 (1908) = *C. asperifolia* Sarg.

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- sinistra* Beadle in Biltmore Bot. Studies, I. 44 (1901).—**Crus-galli**.—Tennessee (type locality: West Nashville).
- sitiens* Ashe in Jour. Elisha Mitchell Sci. Soc. xx. 54 (1904).—**Pruinosae**.—Michigan, Ohio (type locality: St. Clair County, Mich.).
- Slavini* Sargent in N. Y. State Mus. Bull. cxxii. 57 (1908).—**Tenuifoliae**.—New York (type locality: Buffalo).
- Smithii* Sargent, Trees and Shrubs, I. 67 (1903).—**Uniflorae**.—Pennsylvania (type locality: Lowne's Run, Springfield).
- sodalis* Beadle in Biltmore Bot. Studies, I. 80 (1902).—**Flavae**.—Alabama (type locality: Girard).
- sonnenbergensis* Sargent in N. Y. State Mus. Bull. clxvii. 120 (1922).—**Macracanthae**.—New York (type locality: "Sonnenberg," Canandaigua, Ontario County).
- sordida* Sargent in Bot. Gaz. xxxiii. 114 (1902).—**Punctatae**.—Missouri (type locality: Pleasant Grove).
- sordida* var. *villosa* Sargent in Jour. Arnold Arb. vi. 2 (1925).—Missouri, Arkansas (type locality: Fulton, Ark.).
- sororia* Beadle in Bot. Gaz. xxx. 336 (1900).—**Flavae**.—Florida, Georgia, Alabama (type locality: Rome, Ga.).
- spathulata* Michaux, Fl. Bor. Am. I. 288 (1803).—**Microcarpae**.—North Carolina to Florida, west to eastern Texas, Arkansas, Oklahoma and southwestern Missouri (type locality not given).
- spathulata* var. *flavanthera* Sargent apud Palmer in Ann. Missouri Bot. Gard. III. 380 (1916), as "flavantha" = *C. spathulata* Michx.
- spatifolia* Sargent in N. Y. State Mus. Bull. cxxii. 98 (1908).—**Tenuifoliae**.—New York (type locality: Coopers Plains).
- spatiosa* Sargent in Rhodora, vii. 180 (1905).—**Macracanthae**.—Connecticut (type locality: Mumford's Point, Groton).
- speciosa* Sargent, Trees and Shrubs, I. 65 (1903) = *C. coccinoides* Ashe.
- spinea* Sargent in N. Y. State Mus. Bull. clxvii. 122 (1913).—**Macracanthae**.—New York (type locality: Coopers Plains).
- spinifera* Sargent in N. Y. State Mus. Bull. cxxii. 111 (1908).—**Macracanthae**.—New York (type locality: Coopers Plains).
- spinosissima* Loddiges, Cat. 40 (1826), nomen nudum.—Loudon, Arb. Brit. II. 849 (1838). As synonym of *C. flava lobata* Lindl.
- spinulosa* Sargent in Rep. Missouri Bot. Gard. xix. 120 (1908).—**Macracanthae**.—Missouri (type locality: Webb City).
- spissa* Sargent in N. Y. State Mus. Bull. cxxii. 122 (1908).—**Rotundifoliae**.—New York (type locality: North Elba).
- spissiflora* Sargent in Proc. Rochester Acad. Sci. iv. 112 (1903) = *C. Robesoniana* Sarg.
- splendens* Loddiges, Cat. 40 (1826), nomen nudum.—Loudon, Arb. Brit. II. 820 (1838), as synonym of *C. crus-galli* var. *splendens* Ait.



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- splendida* Sargent in Ontario Nat. Sci. Bull. iv. 45 (1908).—**Coccineae**.—  
Ontario (type locality: Sarnia).
- stellata* Sargent, Trees and Shrubs, II. 244 (1913).—**Intricatae**.—  
Connecticut (type locality: East Lyme).
- stenophylla* Sargent in Ontario Nat. Sci. Bull. iv. 76 (1908).—**Macracanthae**.—Ontario (type locality: Toronto).
- stenosepala* Sargent in Jour. Arnold Arb. III. 186 (1922).—**Virides**.—  
Texas (type locality: Duke, Ft. Bend County).
- steubenensis* Sargent in N. Y. State Mus. Bull. CXXII. 103 (1908).—  
**Coccineae**.—New York (type locality: Coopers Plains).
- Stevensiana* Sargent in Jour. Arnold Arb. iv. 99 (1923).—**Crus-galli**.—  
Kansas, Oklahoma (type locality: Neodesha, Kas.).
- stipulacea* Loddiges, Cat. 40 (1826), nomen nudum.—Loudon, Arb.  
Brit. II. 843 (1838), as a synonym of *C. mexicana* Moq. & Sessé.
- stipulacea* var. *microphylla* Hort. ex Nicholson in Hand-list Arb. Kew,  
pt. 1, 197 (1894) as synonym of *C. crus-galli* var. *linearis* DC.
- stolonifera* Sargent in Bot. Gaz. xxxv. 109 (1903).—**Silvicolae**.—  
New York, Pennsylvania, Delaware (type locality: Wilmington,  
Del.).
- Stonei* Sargent in Rhodora, v. 62 (1903).—**Intricatae**.—Massachusetts  
(type locality: Pelham).
- straminea* Beadle in Bot. Gaz. xxx. 345 (1900).—**Intricatae**.—Alabama,  
Tennessee, Oklahoma (type locality: Valleyhead, Ala.).
- straminea* var. *Bissellii* (Sarg.) Eggleston in N. Y. State Mus. Bull.  
CCXLIII-IV. 63 (1923) = *C. Bissellii*.
- stratfordensis* Sargent in Rhodora, VII. 178 (1905).—**Macracanthae**.—  
Connecticut (type locality: Stratford).
- Streeterae* Sargent in Proc. Rochester Acad. Sci. iv. 119 (1903).—  
**Tenuifoliae**.—Southeastern Canada, New York, Michigan (type  
locality: Rochester, N. Y.).
- strigosa* Sargent in N. Y. State Mus. Bull. CXXII. 51 (1908).—**Silvicolae**.—  
New York: (type locality: Buffalo).
- strongylophylla* Sargent in Rep. Missouri Bot. Gard. XIX. 44 (1908) =  
*C. crus-galli* L.
- structilis* Ashe in Jour. Elisha Mitchell Sci. Soc. XIX. 12 (1903).—  
**Macracanthae**.—Ontario, New York and Pennsylvania, west to  
Michigan, Illinois and Missouri (type locality: Berks County, Pa.).
- suavis* Sargent in N. Y. State Mus. Bull. CXXII. 59 (1908).—**Tenui-  
foliae**.—Ontario, New York, Michigan, Ohio (type locality: Buffalo,  
N. Y.).
- subbululata* Sargent in Jour. Arnold Arb. III. 4 (1922).—**Crus-galli**.—  
Texas (type locality: San Augustine).
- submollis* Sargent in Bot. Gaz. XXXI. 7 (1901).—**Molles**.—Southeastern  
Canada, New England (type locality: Jamaica Plain, Mass.).

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- suborbiculata Sargent in Rhodora, III. 72 (1901).—**Punctatae**.—Quebec (type locality: Caughnawaga).
- subpilosa Sargent in Jour. Arnold Arb. III. 6 (1922).—**Crus-galli**.—Arkansas (type locality: Eureka Springs).
- subrotundifolia Sargent in Bot. Gaz. XXXV. 394 (1903).—**Rotundifoliae**.—Wisconsin, Illinois (type locality: Lake Zurich, Ill.).
- subserrata Bentham, Pl. Hartweg. 10 (1839) = *C. mexicana* Moç. & Sessé.
- subvillosa Schrader ex Torrey & Gray, Fl. N. Am. I. 465 (1840), as a synonym of *C. coccinea* var. *mollis*.
- subviridis Beadle in Biltmore Bot. Studies, I. 51 (1902).—**Virides**.—Florida (type locality: Chattahoochee).
- succincta Sargent in Rep. Missouri Bot. Gard. XIX. 78 (1908).—**Punctatae**.—Missouri (type locality: Pacific).
- succulenta Schrader, Ind. Sem. Götting. (1823), ex Lange, Rev. Gen. Crat. 82 (1897).—**Macracanthae**.—Southeastern Canada, New England, New York, Pennsylvania.
- succulenta var. *macracantha* (Lodd.) Eggleston in N. Y. State Mus. Bull. CCXLIII-IV. 65 (1923), as "*macrantha*," = *C. macracantha*.
- succulenta var. *rhombifolia* (Sarg.) Eggleston in N. Y. State Mus. Bull. CCXLIII-IV. 65 (1923) = *C. rhombifolia*.
- sucida Sargent in Rep. Missouri Bot. Gard. XIX. 80 (1908).—**Punctatae**.—Illinois, Missouri, Arkansas (type locality: Monteer, Mo.).
- superata Sargent, Trees and Shrubs, II. 241 (1922).—**Pruinosae**.—Michigan (type locality: Grand Rapids).
- sutherlandensis Sargent in Jour. Arnold Arb. III. 192 (1922).—**Virides**.—Texas (type locality: Sutherland Springs).
- sutherlandensis var. *spinescens* Sargent in Jour. Arnold Arb. III. 193 (1922).—Texas (type locality: Sutherland Springs).
- swanensis Sargent in Jour. Arnold Arb. III. 182 (1922).—**Punctatae**.—Missouri (type locality: Arnold Arboretum, cultivated from seed collected at Swan, Mo.).
- taetrica Sargent in Rep. Geol. Surv. Mich. 1906, 541 (1907).—**Tenuifoliae**.—Michigan, Illinois (type locality: Port Huron, Mich.).
- tantula Sargent in Rep. Missouri Bot. Gard. XIX. 49 (1908).—**Crus-galli**.—Missouri (type locality: Webb City).
- tanuphylla Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 247 (1910).—**Macracanthae**.—Pennsylvania, Ohio (type locality: Pittsburgh, Pa.).
- tarda Sargent in Bot. Gaz. XXXV. 392 (1903).—**Tenuifoliae**.—Wisconsin, Illinois (type locality: Barrington, Ill.).
- tardiflora Sargent in Rep. Missouri Bot. Gard. XIX. 47 (1908).—**Crus-galli**.—Missouri, Arkansas (type locality: Christian County, Mo.).
- tardifolia Ashe in Bull. Charleston Mus. XII. 41 (1916).—**Intricatae**.—South Carolina (type locality not given). (?)

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- tardipes* Sargent in Ontario Nat. Sci. Bull. iv. 51 (1908) = *C. Holmesiana* var. *tardipes* Sarg.
- Tatnalliana Sargent in Bot. Gaz. xxxv. 106(1903).—**Molles**.—Pennsylvania, Delaware (type locality: Wilmington, Del.).
- tecta Beadle in Biltmore Bot. Studies, i. 26 (1901).—**Intricatae**.—Alabama (type locality: Marshall County).
- tenax Ashe in Jour. Elisha Mitchell Sci. Soc. xviii. 21 (1902).—**Punctatae**.—Ontario, Michigan (type locality: Port Huron, Mich.).
- tenella Ashe in Ann. Carnegie Mus. i. 388 (1902).—**Tenuifoliae**.—Connecticut, New York, Pennsylvania, Delaware (type locality: Delaware County, Pa.).
- tenera Ashe in Jour. Elisha Mitchell Sci. Soc. xx. 52 (1904).—**Tenuifoliae**.—Ohio (type locality: Sandusky).
- tennowana Nelson in Bot. Gaz. liv. 408 (1912).—**Douglasianae**.—Idaho (type locality: Falk's Store, Canyon County). (?)
- tenuifolia Britton in Bull. N. Y. Bot. Gard. i. 448 (1900).—**Tenuifoliae**.—Virginia (type locality: "south fork of Holston River").
- tenuiloba Sargent in Proc. Rochester Acad. Sci. iv. 122 (1903).—**Tenuifoliae**.—New York (type locality: Rochester).
- tenuirama Ashe in Bull. Charleston Mus. xii. 41 (1916).—Group?—South Carolina (type locality: "piedmont of South Carolina"). (?)
- tenuis Sargent in Rep. Missouri Bot. Gard. xix. 48 (1908).—**Crusgalli**.—Missouri (type locality: Pacific).
- tenuisepala Sargent in Rep. Missouri Bot. Gard. xix. 68 (1908).—**Crusgalli**.—Missouri, Arkansas (type locality: Moark, Ark.).
- tenuispina Sargent in Rep. Missouri Bot. Gard. xix. 58 (1908).—**Crusgalli**.—Missouri (type locality: Grandin).
- tenuissima Sargent, Trees and Shrubs, ii. 243 (1913).—**Intricatae**.—Pennsylvania (type locality: Scranton).
- teres Beadle in Biltmore Bot. Studies, i. 43 (1901).—**Flavae**.—Alabama (type locality: Montgomery).
- tersa Beadle in Biltmore Bot. Studies, i. 129 (1902).—**Crusgalli**.—Louisiana (type locality: Opelousas).
- tetrica Beadle in Biltmore Bot. Studies, i. 46 (1901).—**Crusgalli**.—Tennessee (type locality: Nashville).
- texana Buckley in Proc. Acad. Nat. Sci. Phila. 1861, 454 (1861).—**Molles**.—Texas (type region: "along Brazos and Colorado Rivers").
- Thayeri Sargent in Rhodora, v. 113 (1903).—**Coccineae**.—Massachusetts (type locality: West Boylston).
- tiliaefolia* K. Koch in Verh. Ver. Beförd. Gartenb. Preuss. n. ser. i. 247 (Weissd. 27) (1853) = *C. mollis* Scheele.
- tinctoria Ashe in Jour. Elisha Mitchell Sci. Soc. xviii. 27 (1902).—Group?—North Carolina, Tennessee (type locality not given). (?)



## CRATAEGUS

- tomentosa* Linnaeus, Spec. i. 476 (1753).—**Macracanthae**.—Ontario and New York, south to North Carolina and Georgia, west to Wisconsin, Iowa, Missouri, Arkansas and eastern Kansas (type region: "Virginia").
- tomentosa* var. *Chapmani* Beadle in Bot. Gaz. xxv. 360 (1898) = *C. Chapmanii* Ashe.
- tomentosa*  $\delta$ . *flabellata* (Bosc) Wood, Cl. Book, 330 (1861) = *C. flabellata*.
- tomentosa* var. *microcarpa* Chapman, Fl. ed. 3, 139 (1897). (Type locality: Rome, Georgia.) (?)
- tomentosa* var. *mollis* (Torr. & Gray) Gray, Man. ed. 5, 160 (1867) = *C. mollis*.
- tomentosa*  $\beta$ . *plicata* Wood, Cl. Book, 330 (1861) = *C. punctata* Jacq.?
- tomentosa* var. *punctata* (Jacq.) Gray, Man. ed. 2, 124 (1856) = *C. punctata*.
- tomentosa* var. *pyrifolia* (Ait.) Gray, Man. ed. 5, 150 (1867). (?)
- tomentosa* var. *Smithii* (Sarg.) Eggleston in Rhodora, x. 79 (1908) = *C. Smithii*.
- torta* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 176 (1910).—**Pruinosaе**.—Pennsylvania (type locality: Nine Mile Run, near Pittsburgh).
- tortilis* Ashe in Jour. Elisha Mitchell Sci. Soc. XVIII. 19 (1902).—Group?—Wisconsin (type locality: Milwaukee). (?)
- tortuosa* Sargent in N. Y. State Mus. Bull. CXXII. 47 (1908).—**Silvicolae**.—New York (type locality: Buffalo).
- torva* Beadle in Biltmore Bot. Studies, I. 130 (1902).—**Crus-galli**.—Georgia, Alabama, Louisiana (type locality: Birmingham, Ala.).
- trachyphylla* Sargent in Bot. Gaz. XXXV. 388 (1903).—**Tenuifoliae**.—Illinois (type locality: Mokena).
- Tracyi* Ashe apud Eggleston in Bull. Torrey Bot. Club, XXXVI. 639 (1909).—**Molles**.—Texas (type locality: "foothills of Davis Mountains").
- trahax* Ashe in Jour. Elisha Mitchell Sci. Soc. XIX. 27 (1903).—**Crus-galli**.—Pennsylvania, Indiana (type locality: Berks County, Pa.).
- transmississippiensis* Sargent in Jour. Arnold Arb. III. 7 (1922).—**Molles**.—Missouri, Arkansas (type locality: Marion County, Ark., near Cotter).
- Treleasei* Sargent, Trees and Shrubs, I. 63 (1903).—**Molles**.—Missouri (type locality: St. Francois County).
- trianthophora* Sargent, Trees and Shrubs, II. 11 (1907).—**Uniflorae**.—Missouri, Arkansas, Texas (type locality: Grandin, Mo.).
- tribulosa* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 182 (1910).—**Pruinosaе**.—Pennsylvania (type locality: Bedford).
- triflora* Chapman, Fl. ed. 2, Suppl. 2, 684 (1892).—**Triflorae**.—Georgia, Alabama, Mississippi (type locality: cliffs of the Coos River, Ga.).

## CRATAEGUS

- trifoliata* Bosc ex DeCandolle, Prodr. II. 630 (1825), nomen nudum.
- trilobata* Loddiges, Cat. 46 (1836), nomen nudum.—Loudon, Arb. Brit. II. 824 (1838), "A hybrid raised from seed in the Hammersmith Nursery about 1820." (?)
- Triosteum* Gruber in Bull. Torr. Bot. Club, XXXII. 392 (1905).—**Punctatae**.—Pennsylvania (type locality: Moselem). (?)
- tripartita* Sargent in Jour. Arnold Arb. III. 188 (1922).—**Virides**.—Texas (type locality: Columbia).
- trisperma* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. pt. 2, 17 (1901).—Group?—North Carolina (type locality: between north and south forks of Toe River, Yancey County). (?)
- tristis* Beadle in Biltmore Bot. Studies, I. 84 (1902).—**Flavae**.—Georgia (type locality: Rome).
- triumphalis* Sargent, Trees and Shrubs, II. 236 (1913).—**Crus-galli**.—Arkansas (type locality: Fulton).
- truculenta* Sargent in N. Y. State Mus. Bull. CLXVII. 118 (1913).—**Macracanthae**.—New York (type locality: Belfast).
- truncata* Sargent in Rep. Missouri Bot. Gard. XIX. 57 (1908).—**Crus-galli**.—Missouri (type locality: Swan).
- tumida* Sargent, Trees and Shrubs, II. 240 (1913).—**Pruinosae**.—Missouri (type locality: Dexter).
- turbinata* Pursh, Fl. Am. Sept. II. 735 (1814) = *C. spathulata* Michx.
- Twiningii* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 230 (1910).—**Intricatae**.—Pennsylvania (type locality: Scranton).
- uber* Ashe in Jour. Elisha Mitchell Sci. Soc. XX. 47 (1904).—**Tenuifoliae**.—Michigan (type locality: Summerville).
- umbratilis* Sargent in Rhodora, VII. 192 (1905).—**Punctatae**.—Connecticut (type locality: Litchfield).
- umbrosa* Sargent in Rep. Missouri Bot. Gard. XIX. 106 (1908).—**Molles**.—Illinois, Missouri (type locality: Carondelet, Mo.).
- uncta* Sargent in N. Y. State Mus. Bull. CXXII. 91 (1908).—**Pruinosae**.—New York (type locality: Coopers Plains).
- uniflora* Muenchhausen, Hausv. V. 147 (1770).—**Uniflorae**.—New York to Florida, west to Kentucky and Mississippi (type locality not given).
- uniflora* var. *florida* (Lodd.) Zabel in Beissner, Schelle & Zabel, Handb. Laubholz-Ben. 170 (1903), nomen nudum. (?)
- uniflora* var. *grossulariifolia* (Lodd.) Zabel in Beissner, Schelle & Zabel, Handb. Laubholz-Ben. 170 (1903), nomen nudum. (?)
- unilateralis* Persoon, Syn. II. 37 (1807).—**Uniflorae**.—(?)
- uniqua* Sargent, Trees and Shrubs, II. 237 (1913).—**Crus-galli**.—Louisiana, Texas (type locality: Marshall, Tex.).
- uplandia* Sargent in Proc. Acad. Nat. Sci. Phila. LVII. 594 (1905).—**Pruinosae**.—Pennsylvania (type locality: Upper Darby).

## CRATAEGUS

- urasina* Hort. ex Nicholson in Hand-list Arb. Kew, pt. 1, 203 (1894), as a synonym of *C. mollis* Scheele.
- urbana* Sargent in Rep. Geol. Surv. Mich. 1906, 556 (1907).—**Anomalae**.—Michigan (type locality: Grand Rapids).
- urbica* Sargent in N. Y. State Mus. Bull. CLXVII. 105 (1913).—**Molles**.—New York (type locality of *C. oblongifolia* Sarg., which this name replaces: Menands).
- uticaensis* Sargent in N. Y. State Mus. Bull. CLXVII. 99 (1913).—**Coccineae**.—New York (type locality: Utica).
- uvaldensis* Sargent in Jour. Arnold Arb. III. 195 (1922).—**Virides**.—Texas (type locality: Uvalde).
- vaga* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 249 (1910).—**Macracanthae**.—Pennsylvania (type locality: Bedford Springs).
- Vailiae* Britton in Bull. Torrey Bot. Club, XXIV. 53 (1897).—**Macracanthae**.—Virginia, North Carolina (type locality: Roanoke, Va.).
- valens* Ashe in Jour. Elisha Mitchell Sci. Soc. XIX. 15 (1903).—**Molles**.—Illinois (type locality: "southern Illinois"). (?)
- valida* Beadle in Biltmore Bot. Studies, I. 77 (1902).—**Flavae**.—Georgia (type locality: Rockmart).
- vallicola* Sargent in Rep. Missouri Bot. Gard. XIX. 74 (1908).—**Crusgalli**.—Ohio, Missouri (type locality: Barretts Station, St. Louis County, Mo.).
- varians* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 225 (1910).—**Rotundifoliae**.—Pennsylvania (type locality: Bedford Springs).
- vegeta* Sargent in Bot. Gaz. XXXV. 396 (1903).—**Macracanthae**.—Illinois (type locality: Calumet).
- vegrandis* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 202 (1910).—**Silvicolae**.—Pennsylvania (type locality: Scranton).
- velata* Ashe in Jour. Elisha Mitchell Sci. Soc. XVIII. 26 (1902).—**Tenuifoliae**.—North Carolina (type locality of *C. atropurpurea* Ashe, which this name replaces: Yancey County). (?)
- velutina* Sargent, Trees and Shrubs, II. 238 (1913).—**Virides**.—Louisiana, Arkansas, Texas (type locality: Fulton, Ark.).
- venosa* Ashe in Jour. Elisha Mitchell Sci. Soc. XIX. 16 (1903).—**Molles**.—Illinois (type locality: "southern Illinois"). (?)
- venulosa* Sargent in Ontario Nat. Sci. Bull. IV. 96 (1908).—**Macracanthae**.—Ontario (type locality: London).
- venusta* Beadle in Bot. Gaz. XXX. 338 (1900).—**Intricatae**.—Alabama (type locality: Birmingham).
- venustula* Sargent in N. Y. State Mus. Bull. CXXII. 79 (1908).—**Macracanthae**.—Ontario, New York (type locality: Niagara Falls, N. Y.).
- verecunda* Sargent in Proc. Rochester Acad. Sci. IV. 109 (1903).—**Intricatae**.—Massachusetts, New York (type locality: Rochester, N. Y.).



## CRATAEGUS

- verecunda* var. *gonocarpa* Peck in N. Y. State Mus. Bull. cxxxix. 33 (1910) = *C. Dodgei* Ashe.
- verna* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 16 (1903).—**Molles**.—Illinois, Missouri (type locality not given). (?)
- vernans* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 10 (1903).—**Macracanthae**.—Virginia, West Virginia (type locality not given). (?)
- verrucalis* Peck in N. Y. State Mus. Bull. cxxii. 123, 158 (1908).—**Rotundifoliae**.—New York (type locality: Herkimer County).
- verruculosa* Sargent, Man. Trees N. Am. 394 (1905).—**Punctatae**.—Missouri, Arkansas (type locality: Springfield, Mo.).
- versuta* Beadle in Biltmore Bot. Studies, i. 112 (1902).—**Flavae**.—Georgia (type locality: Albany).
- vesca* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 13 (1903).—**Molles**.—Iowa (type locality: Keokuk). (?)
- viaria* Beadle in Biltmore Bot. Studies, i. 101 (1902).—**Flavae**.—Florida (type locality: Jacksonville).
- viatica* Ashe in Ann. Carnegie Mus. i. 398 (1902).—**Pruinosae**.—Pennsylvania (type locality: Pittsburgh).
- viburnifolia* Sargent, Trees and Shrubs, ii. 145 (1911).—**Molles**.—Texas (type locality: Columbia).
- vicana* Beadle in Biltmore Bot. Studies, i. 104 (1902).—**Flavae**.—Florida (type locality: Tavares).
- vicina* Sargent in Rep. Missouri Bot. Gard. xix. 77 (1908).—**Punctatae**.—Missouri, Kansas (type locality: Webb City, Mo.).
- vicinalis* Beadle in Biltmore Bot. Studies, i. 124 (1902).—**Pruinosae**.—Georgia, Tennessee (type locality: Chattanooga, Tenn.).
- Victorinii* Sargent in Jour. Arnold Arb. iii. 203 (1922).—**Macracanthae**.—Quebec (type locality: grounds of College Longueuil, opposite Montreal).
- villaris* Beadle in Biltmore Bot. Studies, i. 108 (1902).—**Flavae**.—Florida (type locality: Citra).
- villicarpa* Sargent in Rep. Missouri Bot. Gard. xix. 112 (1908).—**Intricatae**.—Missouri, Arkansas (type locality: Swan, Mo.).
- villiflora* Sargent, Trees, and Shrubs, ii. 61 (1908).—**Crus-galli**.—Missouri, Arkansas, Mississippi (type locality: Grandin, Mo.).
- viminea* Ashe in Jour. Elisha Mitchell Sci. Soc. xviii. 23 (1902).—Group?—North Carolina (type locality: on Buffalo Creek, Ashe County). (?)
- virella* Ashe in Ann. Carnegie Mus. i. 396 (1923).—**Pruinosae**.—Pennsylvania (type locality: Berks County).
- virgata* Ashe in Jour. Elisha Mitchell Sci. Soc. xix. 24 (1903).—**Intricatae**.—North Carolina (type locality: Elk Cross Roads). (?)
- virginiana* Hort. ex Loudon, Arb. Brit. ii. 842 (1838) as synonym of *C. virginica* Lodd.

## CRATAEGUS

- virginica* Loddiges, Cat. 40 (1826), nomen nudum.—Loudon, Arb. Brit. II. 842 (1838).—**Flavae**.—"A native of Virginia." (?)
- viridimontana* Sargent in Rhodora, VII. 204 (1905).—**Tenuifoliae**.—Vermont (type locality: East Middlebury).
- viridis* Linnaeus, Spec. 1. 476 (1753).—**Virides**.—Virginia to Florida, west to Illinois, Missouri and eastern Kansas, Oklahoma and Texas (type region: "Virginia").
- viridis* var. *nitida* Engelmann in Britton & Brown, Ill. Fl. II. 242 (1897) = *C. nitida*.
- virilis* Sargent in Ontario Nat. Sci. Bull. IV. 68 (1908).—**Anomalaе**.—Ontario (type locality: Toronto).
- visenda* Beadle in Biltmore Bot. Studies, 1. 79 (1902).—**Flavae**.—Florida (type locality: Bristol).
- vitellina* Ashe in Jour. Elisha Mitchell Sci. Soc. XVII. 27 (1902).—Group?—North Carolina (type locality: Madison County). (?)
- vittata* Ashe in Jour. Elisha Mitchell Sci. Soc. XX. 50 (1904).—**Tenuifoliae**.—Pennsylvania (type locality: Berks County). (?)
- vivida* Sargent in Ontario Nat. Sci. Bull. IV. 47 (1908).—**Coccineae**.—Ontario, New York (type locality: Toronto, Ont.).
- vulsa* Beadle in Biltmore Bot. Studies, 1. 39 (1901).—**Virides**.—Georgia, Alabama (type locality: Gadsden, Ala.).
- Warneri* Sargent in Jour. Arnold Arb. III. 184 (1922).—**Crus-galli?**—Texas (type locality: Palestine).
- Watsoniana* (Spach) Roemer, Fam. Nat. Syn. III. 117 (1847).—**Crus-galli**.—(?)
- Websteri* Sargent in Rhodora, VII. 215 (1905).—**Rotundifoliae**.—New Hampshire (type locality: Holderness).
- Wheeleri* Nelson in Bot. Gaz. XXXIV. 369 (1902).—**Douglasianae**.—Colorado (type locality: Sapinero). (?)
- Wheeleri* Sargent in Rep. Geol. Surv. Mich. 1906, 552 (1907) = *C. diversifolia* Sarg.
- Wilkinsoni* Ashe in Bot. Gaz. XXXV. 435 (1903).—**Crus-galli**.—Ohio, Kentucky (type locality: Mansfield, O.).
- Williamsii* Eggleston in Bull. Torrey Bot. Club, XXXVI. 641 (1909).—**Rotundifoliae**.—Montana (type locality: Columbia Falls).
- wilmorensis* Sargent in Proc. Acad. Nat. Sci. Phila. LXII. 168 (1910).—**Pruinosae**.—Pennsylvania (type locality: between Portage and Wilmore, Cambria County).
- Woottoniana* Eggleston in Torrey, VII. 236 (1908).—**Tenuifoliae**.—New Mexico (type localities: Socorro and Lincoln Counties). (?)
- xanthocarpos* Medicus, Gesch. Bot. 85 (1793) = *C. punctata* var. *aurea* Ait.
- xanthophylla* Sargent in N. Y. State Mus. Bull. CXXII. 48 (1908).—**Silvicolae**.—New York (type locality: Buffalo).

## CRATAEGUS

*yadkinensis* Ashe in Jour. Elisha Mitchell Sci. Soc. xvii. 17 (1900).—**Flavae**.—North Carolina (type locality: along Yadkin River, Roan County). (?)

*Youngii* Sargent in Jour. Arnold Arb. iv. 105 (1923).—**Microcarpae**.—North Carolina, South Carolina (type locality: Greensboro, N. Car.).

## NAMES EXCLUDED FROM THE GENUS

## CRATAEGUS

*Amelanchier* Desfontaines, Hist. Arb. ii. 149 (1809) = *Amelanchier canadensis* Medic.

*amoena* Salisbury, Prodr. 357 (1796) = *Amelanchier canadensis* Medic.

*arbutifolia* Aiton, Hort. Kew. ed. 2, iii. 202 (1811) = *Heteromeles arbutifolia* Roem.

*coronaria* (L.) Salisbury, Prodr. 357 (1796) = *Malus coronaria* Mill.

*densiflora* Desfontaines apud K. Koch, Dendr. i. 186 (1869), as a synonym = *Heteromeles arbutifolia* Roem.

*racemosa* Lamarck, Encycl. i. 84 (1783) = *Amelanchier canadensis* Medic.

*spicata* Lamarck, Encycl. i. 84 (1873) = *Amelanchier spicata* K. Koch (in part).

## SYNOPSIS OF THE GROUPS

Nutlets not pitted or deeply concave on ventral surfaces.

Leaves merely serrate or dentate or rarely slightly lobed on shoots.

Veins of leaves not deeply impressed; fruit hard and inedible, dotted or blotched but rarely punctate.....I. **Crus-galli**.

Veins of leaves deeply impressed; fruit becoming soft and edible.

II. **Punctatae**.

Leaves of flowering branches or some of them variously lobed or divided.

Fruit usually more than 10 mm. diameter (8-20 or rarely more or less); nutlets variously ridged or rounded on back.

Leaves of flowering branches usually conspicuously narrowed at base or attenuate into winged petioles.

Corymbs few-flowered (1-5 flowers or rarely a few more).

Calyx lobes small, not conspicuously serrate; fruit usually becoming soft and edible.....XVIII. **Aestivales**.

Calyx lobes large and foliaceous, conspicuously serrate; fruit usually hard and inedible (except in *C. austromontana*).

Corymbs 1-3-flowered; leaves relatively small, mostly spatulate or obovate.....XVII. **Uniflorae**.

Corymbs 3-5-flowered (or rarely a few more); leaves larger; corymbs villous or glandular but not conspicuously bracteate.

XVI. **Triflorae**.

Corymbs 5-10-flowered (or rarely a few more); inflorescence conspicuously glandular and bracteate.....XV. **Bracteatae**.

Corymbs many-flowered (5-20 flowers or more).

Inflorescence and petioles generally conspicuously glandular; leaves subcoriaceous.

Leaves relatively large, usually of ovate or oval type; branchlets not conspicuously zig-zag.....V. **Intricatae**.

Leaves relatively small, usually of obovate or elliptic type; branchlets often conspicuously zig-zag.....XIV. **Flavae**.



Inflorescence and petioles generally not conspicuously glandular; leaves thin or thick.

Fruit blue or black (stramineous in var. of *C. brachyacantha*); leaves relatively small, thick and glossy above, those of flowering branches crenate or finely serrate, variously cut or lobed on shoots.

**XIX. *Brachyacanthae*.**

Fruit yellow, orange or red; leaves not as above.

Fruit usually 10-16 mm. diameter; leaves firm or subcoriaceous, mainly of ovoid or elliptic type.....**XII. *Rotundifoliae*.**

Fruit usually 4-10 mm. diameter; leaves thin, mostly of oblong or oval type.

Leaves very variable, irregularly lobed or merely serrate; corymbs many (10-20)-flowered; fruit usually 5-10 mm. diameter.....**III. *Virides*.**

Leaves less variable, with shallow rounded lobes; corymbs 4-10-flowered; fruit usually 8-15 mm. diameter.

**IV. *Pulcherrimae*.**

Leaves of flowering branches usually not conspicuously narrowed, or at least not attenuate at base, mostly of broadly ovate type, petioles slender.

Fruit becoming soft and succulent, bright red or scarlet, usually less than 15 mm. diameter. Corymbs usually glabrous; leaves thin, glabrous beneath, often finely villous-scabrate above.....**VI. *Tenuifoliae*.**

Fruit usually hard and inedible, 10-20 mm. diameter.

Fruiting calyx with distinct neck; leaves usually glabrous above; fruit often angular and pruinose.....**VIII. *Pruinosae*.**

Fruiting calyx sessile; young leaves usually villous-scabrate above; fruit seldom angular or pruinose.....**VII. *Silvicolae*.**

Fruit firm but becoming edible, larger (15-25 mm. diameter); leaves firm, mostly of ovate or deltoid-cordate type.

Mature leaves usually glabrous; fruit usually oblong or obovoid; fruiting calyx small.....**IX. *Coccineae*.**

Mature leaves usually pubescent, firm, with thick petioles and veins; stamens 10-20; nutlets 3-5.....**X. *Molles*.**

Mature leaves usually glabrous; fruit subglobose, calyx much enlarged; stamens 20; nutlets 5.....**XI. *Dilatatae*.**

Fruit 4-6 mm. diameter, bright scarlet, becoming soft and succulent; flowers small, many in a corymb; nutlets very small, not rounded or ridged on back.

**XIII. *Microcarpae*.**

Nutlets pitted or deeply concave on ventral surfaces.

Fruit dark crimson or chestnut, becoming black when fully ripe; nutlets 5.

**XX. *Douglasianae*.**

Fruit orange or scarlet.

Nutlets 2-3, deeply pitted or concave; flowers in usually many-flowered clusters at ends of leafy branchlets; fruit usually less than 10 mm. diameter.

**XXII. *Macracanthae*.**

Nutlets 3-5, with shallow pits; flower usually fewer in cluster, on short terminal or lateral branchlets; fruit usually more than 10 mm. diameter.

**XXI. *Anomalae*.**

**SYNOPTICAL TABLES OF SPECIES ARRANGED BY GROUPS AND FLORAL AND FOLIAGE CHARACTERS**

**I. *Crus-galli***

A. Anthers red, rose, pink or purple (AA and AAA see p. 82)

B. Stamens about 10 (5-15) (BB see p. 81)

C. Corymbs glabrous (CC see p. 80)

D. Leaves mostly spatulate, obovate or lance-elliptic (on vigorous shoots broader but distinctly longer than broad)

- accincta* Sarg. Fruit narrow-oval, scarlet, 7-8 mm. diameter.
- armata* Beadle (?) Fruit globose, dull red, 5-8 mm. diameter. Color of anthers unknown.
- attenuata* Ashe. Fruit oblong, dull red or green mottled, 8-12 mm. diameter. Stamens sometimes 15 or more.
- bellica* Sarg. Fruit short-oblong or subglobose, dull dark red, 8-10 mm. diameter. Corymbs sometimes slightly villous.
- calophylla* Sarg. Fruit short-oblong or slightly oval, orange-red, dark dotted, 8-9 mm. diameter.
- crus-galli* L. Fruit short-oblong or subglobose, dull red, 8-12 mm. diameter.
- Farwellii* Sarg. Fruit oval or obovoid, crimson, 9-10 mm. diameter. Corymbs often villous.
- geneseensis* Sarg. Fruit short-oblong, scarlet, dark dotted, 10-12 mm. diameter.
- hamata* Sarg. Fruit short-oblong or ovoid, light orange-red or green, dark dotted, 11-12 mm. diameter.
- helvina* Ashe. (?) Fruit obovoid or subglobose, light red, 10-14 mm. diameter. Color of anthers not given.
- immitis* Ashe. (?) Fruit globose, dark red, green mottled, 9-12 mm. diameter. Color of anthers not given.
- infesta* Sarg. Fruit oblong or oval, dull yellow or tinged with orange, 9-10 mm. diameter.
- macra* Beadle. Fruit subglobose or oval, red, 5-8 mm. diameter.
- multispina* Ashe. (?) Fruit oblong, dull red-brown, 7-9 mm. diameter. Color of anthers not given.
- operta* Ashe. Fruit oblong, dark red, 10-12 mm. diameter. Corymbs sometimes slightly villous.
- permera* Sarg. Fruit short-oblong, green, red tinged, dotted, 8-9 mm. diameter.
- pyracanthoides* Beadle. Fruit globose, bright red, 5-8 mm. diameter.
- schizophylla* Egglest. Fruit pyriform-ellipsoid, dark red, 7-8 mm. diameter.
- setosa* Sarg. Fruit subglobose or depressed-globose, crimson, dotted, 9-11 mm. diameter. Corymbs sometimes slightly villous.
- tenuis* Sarg. Fruit oval to ovoid, dull green or red tinged, pale dotted, 6-7 mm. diameter.
- trahax* Ashe. Fruit globose or oblong, crimson, dark dotted or mottled, 8-10 mm. diameter.
- Wilkinsonii* Ashe. Fruit oblong, dark red, 10-14 mm. diameter.
- DD. Leaves broader, obovate, oval or oblong (on vigorous shoots broadly oval to suborbicular)
- Canbyi* Sarg. Fruit oblong to obovoid, dark crimson, punctate, 8-10 mm. diameter.
- cerasina* Sarg. Fruit short-oblong, bright cherry-red, 8-10 mm. diameter. Stamens sometimes 15-20.

*discolor* Sarg. Fruit short-oblong to subglobose, dull red, blotched with green, 8–10 mm. diameter.

*fecunda* Sarg. Fruit short-oblong to subglobose, orange-red, dark dotted, 10–18 mm. diameter. Corymbs and leaves sometimes slightly villous.

*lawrencensis* Sarg. Fruit subglobose, green tinged with red, about 5 mm. diameter. Stamens sometimes 15 or more.

*peoriensis* Sarg. Fruit oblong to obovoid, bright scarlet, 7–10 mm. diameter.

*persimilis* Sarg. Fruit oblong to subglobose, dark crimson, dotted, about 11 mm. diameter. Corymbs sometimes slightly villous.

*Reverchonii* Sarg. Fruit subglobose, light scarlet, 10 mm. diameter.

*robusta* Sarg. Fruit short-oblong to obovoid, crimson, pale dotted, 7–8 mm. diameter. Stamens sometimes 20.

*rubrifolia* Sarg. Fruit subglobose, bright orange-red, 8–9 mm. diameter.

*tantula* Sarg. Fruit subglobose or short-oblong, dark red, dark dotted, 7–8 mm. diameter.

*tenuisepala* Sarg. Fruit short-oblong, orange-red, dark dotted, 8–9 mm. diameter. Stamens sometimes 15 or more.

CC. Corymbs at flowering time villous or pubescent

D. Leaves mostly spatulate, obovate or lance-elliptic (on vigorous shoots broader but usually longer than wide)

*albicera* Beadle. Fruit oblong, pale yellow, 8–9 mm. diameter.

*arta* Beadle. Fruit subglobose to short-ovoid, yellow-green and orange-red, about 10 mm. diameter.

*bellica* Sarg. Corymbs usually nearly or quite glabrous. Fruit characters as given above.<sup>1</sup>

*Engelmannii* Sarg. Fruit globose, bright orange-red, 8–10 mm. diameter.

*Farwellii* Sarg. Corymbs sometimes nearly or quite glabrous. Fruit characters as given above.

*munita* Sarg. Fruit subglobose or slightly longer than thick, scarlet, pale dotted, 8–9 mm. diameter.

*operta* Ashe. Corymbs usually glabrous or nearly so. Fruit characters as given above.

*setosa* Sarg. Corymbs usually nearly or quite glabrous. Fruit characters as given above.

*signata* Beadle. (?) Fruit oval or oblong, red, punctate, 9–10 mm. diameter. Color of anthers not given.

*sinistra* Beadle. Fruit oval, reddish, green or yellow, 6–8 mm. diameter.

*tenuis* Sarg. Corymbs glabrous or nearly so. Fruit characters as given above.

*torva* Beadle. Fruit subglobose, color not given, 7–9 mm. diameter.

DD. Leaves broader, mostly elliptic, oblong or oval (on vigorous shoots broadly oval to suborbicular)

<sup>1</sup>Referring in this as in the following instances to the characters given under the same species in one of the preceding subdivisions of this group.



*fecunda* Sarg. Corymbs usually glabrous or nearly so. Fruit characters as given above.

*helderbergensis* Sarg. Fruit short-oblong to obovoid, crimson, dotted, about 8 mm. diameter.

*montivaga* Sarg. Fruit short-oblong to ellipsoidal, orange-red, 6-7 mm. diameter.

*palliata* Sarg. Fruit subglobose, dark red, pale dotted, 10 mm. diameter.

*persimilis* Sarg. Corymbs sometimes glabrous or nearly so. Fruit characters as given above.

*tetrica* Beadle. Fruit subglobose, red or yellowish-green, about 10 mm. diameter.

*triumphalis* Sarg. Fruit oval or short-oblong, crimson or greenish-red, pale dotted, 8-10 mm. diameter.

*vallicola* Sarg. Fruit short-oblong, dull crimson blotched with green, pale dotted, 14-16 mm. diameter.

*Warneri* Sarg. Fruit ellipsoidal or subglobose, orange-red, 6-9 mm. diameter.

BB. Stamens about 20 (15-20)

C. Corymbs at flowering time glabrous or nearly so

D. Leaves of flowering branches mostly spatulate, obovate or lance-elliptic (on vigorous shoots broader but usually longer than wide)

*Cocksii* Sarg. Fruit short-oblong to slightly obovoid, crimson, 8-12 mm. diameter.

*Fontanesiana* Steud. Fruit short-oblong or oval, bright red, 8-10 mm. diameter.

*leptophylla* Sarg. Fruit short-oblong to slightly obovoid, light orange-red, 8-10 mm. diameter.

*limnophylla* Sarg. Fruit ellipsoidal, bright red, 6-7 mm. diameter.

*phlebodia* Sarg. Fruit short-oblong, dull scarlet blotched with green, pale dotted, 8-11 mm. diameter.

DD. Leaves of flowering branches broader, mostly elliptic, oblong or oval (on vigorous shoots broadly oval to suborbicular)

*attenuata* Ashe. Stamens usually 10; fruit characters as given above.

*Bushii* Sarg. Fruit short-oblong, green tinged with red, 6-8 mm. diameter.

*cerasina* Sarg. Fruit short-oblong, bright cherry-red, pale dotted, 8-10 mm. diameter. Stamens sometimes only 10.

*intermixta* Sarg. Fruit subglobose to slightly obovoid, dark orange-red, 10-12 mm. diameter.

*lawrencensis* Sarg. Stamens sometimes 15 or less. Fruit characters as given above.

*Pennypackeri* Sarg. Fruit oblong, bright crimson, pale dotted, 8-10 mm. diameter. Corymbs sometimes slightly villous.

*persimilis* Sarg. Fruit oblong to subglobose, dark crimson, dark dotted, about 11 mm. diameter. Corymbs sometimes slightly villous.

*robusta* Sarg. Fruit short-oblong to obovoid, crimson, pale dotted, 7-8 mm. diameter. Stamens sometimes only 10.

*rotunda* Sarg. Fruit subglobose to depressed-globose, light cherry-red, 13-15 mm. diameter.

*sublobulata* Sarg. Fruit short-oblong, subglobose or obovoid, orange-red, 6-7 mm. diameter.

*tenuisepala* Sarg. Stamens sometimes only 10-15. Fruit characters as given above.

CC. Corymbs at flowering time villous or pubescent

D. Leaves of flowering branches mostly spatulate, obovate or lance-elliptic (on vigorous shoots broader but usually longer than wide)

*edita* Sarg. Fruit short-oblong, dull green tinged with red, 6-8 mm. diameter.

*limnophylla* Sarg. Corymbs slightly villous or glabrous. Fruit characters as given above.

*ohioensis* Sarg. Fruit ellipsoidal or obovoid, reddish-green, dotted, 7-8 mm. diameter.

*tersa* Beadle. Fruit subglobose, color not given, 8-9 mm. diameter.

DD. Leaves broader, mostly elliptic, oblong or oval

*Pennypackeri* Sarg. Corymbs usually glabrous or nearly so. Fruit characters as given above.

*persimilis* Sarg. Cormbs sometimes glabrous or nearly so. Fruit characters as given above.

AA. Anthers salmon or yellowish flushed with pink; stamens about 10

B. Corymbs at flowering time glabrous

*consueta* Sarg. Fruit oval, orange-red, dark dotted, 8-10 mm. diameter.

*tardiflora* Sarg. Fruit short-oblong, dull red blotched with green, 10-12 mm. diameter.

BB. Corymbs at flowering time villous or pubescent

*barbata* Sarg. Fruit short-oblong to subglobose, dark red, pale dotted, 8-9 mm. diameter.

*hirtella* Sarg. Fruit subglobose to short-oblong, green tinged with red, about 10 mm. diameter.

AAA. Anthers white, cream or yellow

B. Stamens about 10 (5-12) (BB see p. 84)

C. Corymbs at flowering time glabrous or nearly so (CC see p. 84)

D. Leaves of flowering branches mostly obovate, spatulate, narrowly oblong or lance-elliptic (on vigorous shoots broader but usually longer than broad)

*algens* Beadle. Fruit subglobose or ovoid, dull red or green and red, 8-10 mm. diameter.

*aliena* Sarg. Fruit short-oblong to slightly obovoid, crimson, pale dotted, 9-10 mm. diameter.

*arduennae* Sarg. Fruit oblong, dull dark crimson, pale dotted, 8-10 mm. diameter.

*armata* Beadle. (?) Fruit globose, dull red, 5-8 mm. diameter. Color of anthers unknown.

*barrettiana* Sarg. Fruit subglobose to slightly obovoid, dull red or bronze, 10-12 mm. diameter.

- Bartramiana* Sarg. Fruit subglobose or slightly longer than thick, crimson, dark dotted, 8–10 mm. diameter. Corymbs sometimes villous,
- collicola* Ashe. (?) Fruit depressed-globose, orange-red or dull red, 8–11 mm. diameter. Color of anthers unknown.
- eburnea* Ashe. Fruit subglobose, dull dark red, about 13 mm. diameter.
- helvina* Ashe. (?) Fruit obovoid or subglobose, light red, 10–14 mm. diameter. Color of anthers unknown.
- immitis* Ashe. (?) Fruit globose, dark red or green mottled, 9–12 mm. diameter. Color of anthers unknown.
- monosperma* Sarg. Fruit oval to ovoid, dull red, pale dotted, 9–10 mm. diameter.
- multispina* Ashe. (?) Fruit oblong, dull red-brown, 7–9 mm. diameter. Color of anthers unknown.
- pachyphylla* Sarg. Fruit short-oblong, scarlet, dark dotted, 14–15 mm. diameter.
- panda* Ashe (not Beadle). (?) Fruit oval, dull red, 12–14 mm. long. Color of anthers unknown.
- Parkae* Sarg. Fruit oblong-ovoid, red, pale dotted, 8–9 mm. diameter.
- rudis* Sarg. Fruit oval to subglobose, scarlet, dark dotted, 8–10 mm. diameter.
- severa* Sarg. Fruit subglobose or depressed-globose, dark green tinged with red, 12–14 mm. diameter. (This species was described as having pink anthers, which was probably an error, as cultivated specimens and subsequent collections show anthers white or pale yellow.)
- Stevensiana* Sarg. Fruit short-oblong to slightly obovoid, green tinged with red, 4–5 mm. diameter.
- tenuispina* Sarg. Fruit subglobose to short-oblong, crimson, pale dotted, 9–10 mm. diameter.
- truncata* Sarg. Fruit short-oblong to slightly obovoid, crimson, pale dotted, 8–10 mm. diameter.
- DD. Leaves of flowering branches broader, mostly obovate, elliptic or oblong (on vigorous shoots often suborbicular or broad as long)
- acutifolia* Sarg. Fruit oblong, bright scarlet, dark dotted, 8–10 mm. diameter.
- efferta* Sarg. Fruit short-oblong, broader than long, dark crimson, pale dotted, 12–13 mm. diameter.
- erecta* Sarg. Fruit short-oblong or subglobose, dull crimson, dark dotted, 7–10 mm. diameter.
- Palmeri* Sarg. Fruit subglobose, bright cherry-red, pale dotted, 8–9 mm. diameter.
- phaenoneura* Sarg. Fruit subglobose, dull red, 10–12 mm. diameter. Corymbs sometimes slightly villous.
- regalis* Beadle. Fruit oblong, color not given, about 8 mm. diameter.
- rubrisepala* Sarg. Fruit subglobose to short-oblong, orange-red, 7–8 mm. diameter.



CC. Corymbs at flowering time villous or pubescent

D. Leaves of flowering branches mostly obovate, spatulate, narrowly rhombic or lance-elliptic (on vigorous shoots broader but usually longer than broad)

*Bartramiana* Sarg. Corymbs usually glabrous or nearly so. Fruit characters as given above.

*pilifera* Sarg. Fruit short-oblong, dull red, pale dotted, 9–10 mm. diameter.

*signata* Beadle. (?) Fruit oval or oblong, red, punctate, 7–10 mm. diameter. Color of anthers unknown.

*villiflora* Sarg. Fruit short-oblong, green tinged with crimson, 8–9 mm. diameter.

DD. Leaves of flowering branches broader, mostly broadly-elliptic, oval or oblong

*paradoxa* Sarg. Fruit oblong or ovoid, red, dark dotted, 6–7 mm. diameter.

*phaneroneura* Sarg. Corymbs sometimes glabrous. Fruit characters as given above.

BB. Stamens about 20 (15–20)

C. Corymbs at flowering time glabrous or nearly so

D. Leaves of flowering branches relatively narrow, mostly obovate, spatulate, oblong or lance-elliptic (on vigorous shoots broader but usually distinctly longer than broad)

*araioclada* Sarg. Fruit short-oblong, dull orange-red, 8–10 mm. diameter.

*arborea* Beadle. Fruit globose or subglobose, red or ruddy, 6–9 mm. diameter.

*jasperensis* Sarg. Fruit subglobose, crimson, pale dotted, 8–9 mm. diameter.

*Mohrii* Beadle. Fruit globose, red or greenish-red, black blotched, 7–9 mm. diameter. Corymbs sometimes slightly pilose.

*polyclada* Sarg. Fruit short-oblong or slightly ovoid, orange-red, pale dotted, 8–10 mm. diameter.

*uniqua* Sarg. Fruit short-oblong, dull red, 7–8 mm. diameter.

DD. Leaves of flowering branches broader, mostly elliptic, oval or oblong (on vigorous shoots often suborbicular or broad as long)

*effulgens* Sarg. Fruit short-oblong, scarlet, pale dotted, 10–12 mm. diameter.

*insignis* Sarg. Fruit subglobose, dull dark red, pale dotted, 14–15 mm. diameter. Corymbs sometimes slightly villous.

CC. Corymbs at flowering time villous or pubescent

D. Leaves of flowering branches relatively narrow, mostly obovate, spatulate, oblong or lance-elliptic (on vigorous shoots broader but usually distinctly longer than broad)

*berberifolia* T. & G. Fruit subglobose, orange, or reddish, 12–14 mm. diameter.

*crocina* Beadle. Fruit oval or oblong, yellow, 8–11 mm. diameter.

*edura* Beadle. Fruit subglobose, orange-yellow or tinged with red, 8–9 mm. diameter.

*fera* Beadle. Fruit globose or subglobose, bright red or scarlet, about 10 mm. diameter.

*Mohrii* Beadle. Corymbs usually glabrous or nearly so. Fruit characters as given above.

*persistens* Sarg. Fruit subglobose or short-oblong, crimson, dark dotted, about 15 mm. diameter.

*subpilosa* Sarg. Fruit subglobose or short-oblong, dull orange-red, 8-10 mm. diameter.

DD. Leaves of flowering branches broader, mostly oval, oblong or elliptic (on vigorous shoots often as broad as long, very large)

*insignis* Sarg. Corymbs usually glabrous or nearly so. Fruit characters as given above.

## II. *Punctatae*

A. Anthers red, rose or pink (AA see p. 87)

B. Stamens about 10 (5-15)

C. Corymbs glabrous or nearly so

*calvescens* Sarg. Fruit subglobose, dark red, dark dotted, about 15 mm. diameter. Stamens sometimes 20.

*cuneiformis* Eggles. Fruit ellipsoid-pyriform, scarlet or dark red, about 10 mm. diameter. Corymbs sometimes slightly pubescent and stamens 10-20.

*glabrifolia* Sarg. (?) Fruit subglobose, angular, greenish red, dark dotted, 10-12 mm. diameter. Color of anthers unknown.

*incerta* Sarg. Fruit subglobose or short-oblong, crimson, 8-10 mm. diameter.

*praestans* Sarg. Fruit short-oblong to oval, dark red, minutely dark dotted, 8-10 mm. diameter.

*pratensis* Sarg. Fruit globose, bright scarlet, about 10 mm. diameter. Corymbs sometimes slightly pubescent.

*sauratona* Ashe. (?) Fruit red, about 12 mm. diameter, shape not described. Number of stamens and color of anthers unknown.

*tenax* Ashe. Fruit subglobose, scarlet or mottled with yellow or olive, 14-15 mm. diameter. Stamens sometimes 20.

CC. Corymbs distinctly pubescent or villous

*Brownietta* Sarg. Fruit subglobose to slightly obovoid, crimson, pale dotted, about 15 mm. diameter.

*cuneiformis* Eggles. Corymbs usually glabrous. Fruit characters as given above.

*desueta* Sarg. Fruit short-oblong, scarlet, pale dotted, 8-10 mm. diameter.

*pausiaca* Ashe. Fruit oblong or slightly pyriform, crimson, 10-15 mm. diameter.

*porrecta* Ashe. Fruit globose or slightly oblong, dull red, 11-14 mm. diameter.

*praestans* Sarg. Corymbs usually glabrous or nearly so. Fruit characters as given above.

BB. Stamens about 20 (12-20)

C. Corymbs glabrous or nearly so

*barbara* Sarg. Fruit oblong-obovoid, crimson, 8-10 mm. diameter.

- calvescens* Sarg. Stamens sometimes only 10. Fruit characters as given above.
- compacta* Sarg. Fruit short-oblong, orange-red, pale dotted, 9–10 mm. diameter.
- Dewingii* Sarg. Fruit short-oblong, crimson, pale dotted, 10–12 mm. diameter.
- Eastmaniana* Sarg. Fruit short-oblong to slightly obovoid, dark crimson, pale dotted, 10–12 mm. diameter.
- grandis* Ashe. Fruit globular, bright crimson, 11–14 mm. diameter. Corymbs sometimes minutely pubescent.
- limatula* Sarg. Fruit short-oblong to subglobose, crimson, pale dotted, about 15 mm. diameter.
- nitidula* Sarg. Fruit short-oblong, dark yellow blotched with red, dark dotted, 10–12 mm. diameter.
- notabilis* Sarg. Fruit short-oblong to slightly obovoid, orange-red, dark dotted, 7–8 mm. diameter.
- sauratonae* Ashe.? Floral characters unknown. Fruit as described above.
- silvestris* Sarg. Fruit subglobose or short-oblong, dull orange-red, about 10 mm. diameter. Corymbs usually slightly villous.
- suborbiculata* Sarg. Fruit subglobose or rather longer than broad, dull red blotched with green, 12–15 mm. diameter.
- tenax* Ashe. Stamens sometimes 10–15. Fruit characters as given above.
- umbratilis* Sarg. Fruit short-oblong to subglobose, bright apple-green (unripe?), about 10 mm. diameter.
- CC. Corymbs distinctly villous or pubescent
- angustata* Sarg. Fruit subglobose or depressed-globose, crimson blotched with green, pale dotted, 12–14 mm. diameter.
- brazorina* Sarg. Fruit subglobose or longer than broad, bright canary-yellow, dark blotched, about 10 mm. diameter.
- celsa* Sarg. Fruit subglobose, crimson, pale dotted, 8–9 mm. diameter.
- dallasiana* Sarg. Fruit subglobose, dark dull red, 9–10 mm. diameter.
- Eatoniana* Sarg. Fruit subglobose to depressed-globose, bright cherry-red, 10–12 mm. diameter.
- florifera* Sarg. Fruit short-oblong, crimson with pale lenticles, 10–12 mm. diameter.
- grandis* Ashe. Corymbs sometimes glabrous. Fruit characters as given above.
- indicens* Ashe. (?) Fruit globose, dark dull red, olive mottled, 13–15 mm. diameter. Color of anthers unknown.
- punctata* Jacq. Fruit short-oblong to subglobose, dull red (yellow in var. *aurea*), pale dotted, 13–20 mm. diameter.
- recedens* Sarg. Fruit subglobose or slightly obovoid, dark red, green blotched or russet, scarcely punctate, 11–15 mm. diameter.
- silvestris* Sarg. Corymbs sometimes nearly glabrous. Fruit characters as given above.

*sordida* Sarg. Fruit subglobose, dark dull red, 10–12 mm. diameter.

*verruculosa* Sarg. Fruit subglobose, dark red, 12–16 mm. diameter.

AA. Anthers white, cream or yellow

B. Stamens about 10 (5–15)

C. Corymbs glabrous or nearly so

*glabrifolia* Sarg. (?) Color of anthers unknown. Fruit characters as given above.

*sauratonae* Ashe. (?) Color of anthers unknown. Fruit characters as given above.

CC. Corymbs villous or pubescent

*hirtiflora* Sarg. Fruit subglobose or depressed-globose, crimson blotched with green or pale lenticles, 15–16 mm. diameter.

*incaedua* Sarg. Fruit short-oblong, yellowish-red, pale dotted, 8–9 mm. diameter.

*latebrosa* Sarg. Characters of mature fruit not known.

*Lettermanii* Sarg. Fruit subglobose or depressed-globose, dark red with pale lenticles, 14–16 mm. diameter.

*macropoda* Sarg. Fruit subglobose or short-oblong, crimson, pale dotted, 8–10 mm. diameter.

*secta* Sarg. Fruit subglobose, crimson, pale dotted, 10–12 mm. diameter. Stamens usually only 5–8.

BB. Stamens about 20 (12–20)

C. Corymbs glabrous or nearly so

*fastosa* Sarg. Fruit subglobose or short-oblong, dull orange-red, pale dotted, 9–10 mm. diameter.

*sauratonae* Ashe. (?) Color of anthers and number of stamens unknown. Fruit characters as given above.

CC. Corymbs villous or pubescent

*annicola* Beadle. Fruit subglobose, red, 7–10 mm. diameter.

*collina* Chapm. Fruit globose, dull red, about 10 mm. diameter.

*indicens* Ashe. (?) Color of anthers unknown. Fruit characters as given above.

*punctata* var. *aurea* Ait. Fruit short-oblong to subglobose, yellow, 13–20 mm. diameter.

*rigens* Beadle. Fruit subglobose or slightly pyriform, red, 9–12 mm. diameter.

*succincta* Sarg. Fruit subglobose, orange-red, 7–9 mm. diameter.

*sucida* Sarg. Fruit subglobose, bright red, 8–12 mm. diameter.

*vicina* Sarg. Fruit subglobose or slightly longer than wide, 10–12 mm. diameter.

### III. Virides

A. Anthers pink, rose or purple

B. Corymbs glabrous

*antimima* Sarg. Fruit subglobose or slightly obovoid, dark orange-red, 7–8 mm. diameter. Corymbs sometimes slightly villous.



*arborescens* Ell. Fruit subglobose, orange-red, 5-7 mm. diameter.

Corymbs sometimes villous.

*durifolia* Ashe. (?) Fruit globular, dull red, 8-10 mm. diameter. Color of anthers unknown.

*enucleata* Sarg. Fruit subglobose to short-oblong, orange-red, 7-8 mm. diameter.

*Pechiana* Sarg. Fruit subglobose or slightly broader than long, orange-red, 8-9 mm. diameter.

*penita* Beadle. Fruit globose or depressed-globose, red, 8-10 mm. diameter.

*Schneckii* Ashe. (?) Fruit nearly globular, bright red, about 8 mm. diameter. Color of anthers unknown.

*sutherlandensis* Sarg. Fruit subglobose, orange-red, 7-8 mm. diameter.

BB. Corymbs villous or pubescent

*antimima* Sarg. Corymbs sometimes glabrous. Fruit characters as given above.

*ingens* Beadle. Fruit globose or subglobose, red, 7-9 mm. diameter.

*micracantha* Sarg. Fruit subglobose to short-oblong, bright orange-red, about 7 mm. diameter.

*paludosa* Sarg. Fruit subglobose or short-oblong, orange-red, dark dotted, 5-8 mm. diameter.

*stenosepala* Sarg. Fruit ellipsoidal to slightly obovoid, orange-red, 5-6 mm. diameter.

*subviridis* Beadle. (?) Fruit globose, color not described, 5-7 mm. diameter. Color of anthers unknown.

AA. Anthers cream-white or yellow

B. Corymbs glabrous

*abbreviata* Sarg. Fruit subglobose, dark red, 6-8 mm. diameter. Corymbs usually slightly villous.

*atrorubens* Ashe. Fruit globular, dark red, 9-11 mm. diameter.

*blanda* Sarg. Fruit subglobose to short-oblong, bright orange-red, pale dotted, about 8 mm. diameter.

*durifolia* Ashe. (?) Color of anthers unknown. Fruit characters as given above.

*glabriuscula* Sarg. Fruit oblong to obovoid, dull orange-color with dark lenticles, 5-8 mm. diameter.

*interior* Beadle. Fruit globose, bright red, 7-8 mm. diameter.

*lanceolata* Sarg. Fruit short-oblong to slightly obovoid, dark red, 6-7 mm. diameter.

*larga* Sarg. Fruit obovoid, scarlet, pale dotted, 7-8 mm. diameter.

*ludoviciensis* Sarg. Fruit short-oblong, crimson, 9-10 mm. diameter.

*lutensis* Sarg. Fruit orange-red, dark dotted, 4-5 mm. diameter.

*mitis* Sarg. Fruit subglobose to short-oblong, dark crimson, dark dotted, 10-12 mm. diameter.

*nitens* Sarg. Fruit subglobose, orange-red, 6-8 mm. diameter.

*nitida* Sarg. Fruit oblong, dull brick-red with dark lenticles, 8-15 mm. diameter.

*ovata* Sarg. Fruit subglobose or slightly longer than broad, orange-red, 5-6 mm. diameter.

*Schneckii* Ashe. (?) Color of anthers unknown. Fruit characters as given above.

*tripartita* Sarg. Fruit short-oblong, yellow-green, 5-8 mm. diameter.

*viridis* L. Fruit subglobose or depressed-globose, bright scarlet or orange, 4-5 mm. diameter.

BB. Corymbs villous or pubescent

*abbreviata* Sarg. Corymbs sometimes glabrous. Fruit characters as given above.

*amicalis* Sarg. Fruit subglobose, dull red, 6-8 mm. diameter.

*antiplasta* Sarg. Fruit subglobose, scarlet, 7-8 mm. diameter.

*atrorubens* Ashe. Corymbs sometimes glabrous. Fruit characters as given above.

*Dawsoniana* Sarg. Fruit obovoid, orange-red, 8-10 mm. diameter.

*poliophylla* Sarg. Fruit globose to short-oblong or ovoid, orange-red, 6-7 mm. diameter.

*subviridis* Beadle. (?) Color of anthers unknown. Fruit characters as given above.

*velutina* Sarg. Fruit subglobose, orange-red, pale dotted, 6-7 mm. diameter.

#### IV. *Pulcherrimae*

AA. Anthers rose or purple

*abstrusa* Beadle. Fruit oval or short pyriform, color not given, 7-9 mm. diameter.

*ancisa* Beadle. Fruit globose or subglobose, red or ruddy, 10-12 mm. diameter.

*assimilis* Beadle. Fruit globose, color not described, 7-9 mm. diameter.

*austrina* Beadle. Fruit globose, green or greenish-yellow, about 10 mm. diameter.

*concinna* Beadle. Fruit subglobose, color not described, 7-8 mm. diameter.

*contrita* Beadle. Fruit subglobose yellow-green or orange, 7-9 mm. diameter.

*illustris* Beadle. Fruit depressed globose, color not described, about 10 mm. diameter.

*incilis* Beadle. Fruit subglobose, red or red and green, 7-9 mm. diameter.

*opima* Beadle. Fruit globose, bright red, 5-8 mm. diameter.

*pinetorum* Beadle. Fruit subglobose, red or ruddy, 7-10 mm. diameter.

*pulcherrima* Ashe. Fruit oval, yellow-green, 6-8 mm. diameter.

AA. Anthers cream or yellow

*lenis* Beadle. Fruit oval or subpyriform, red or ruddy, 6-8 mm. diameter.

## V. Intricatae

A. Anthers pink, rose or purple (AA see p. 91)

B. Stamens about 10 (7-12) (BB see p. 91)

C. Leaves at flowering time glabrous or nearly so

*Bealii* Sarg. Fruit short-oblong to subglobose, dark orange-red, dark dotted, about 10 mm. diameter. Stamens sometimes 16 or more.

*Bissellii* Sarg. Fruit pyriform, dull orange-red or green tinged, 9-10 mm. diameter.

*Buckleyi* Beadle. Fruit subglobose angled, red or russet-red, 8-12 mm. diameter.

*Darlingtoniana* Sarg. (?) Fruit short-oblong to depressed-globose, bright canary yellow, 12-14 mm. diameter. Flowers unknown.

*definita* Sarg. Fruit subglobose to short-oblong, greenish or greenish-yellow, about 10 mm. diameter. Young leaves sometimes slightly scabrate above.

*diversifolia* Sarg. Fruit obovoid, bright orange, dark dotted, 8-9 mm. diameter.

*fortunata* Sarg. Fruit short-oblong to slightly obovoid, bright canary-yellow, dark dotted, 12-14 mm. diameter.

*fulva* Sarg. Fruit globose or oblong-globose, red or orange, bronze tinged. Leaves sometimes slightly scabrate.

*Hargeri* Sarg. Fruit obovoid, dull orange-green, 10-12 mm. diameter.

*inducta* Ashe. Fruit globose or obovoid, dull green or russet, 8-10 mm. diameter.

*Jenningsii* Sarg. Fruit depressed-ovoid to short-oblong, russet-green, dark russet-red or bronze, 13-16 mm. diameter.

*leioclada* Sarg. Fruit subglobose to short-oblong, green or flushed with red, 10-12 mm. diameter.

*luteola* Sarg. Fruit subglobose to short-obovoid, light canary-yellow, 8-10 mm. diameter.

*meticulosa* Sarg. Fruit short-oblong to ovoid, orange-red, dark dotted, 10-12 mm. diameter.

*neobushii* Sarg. Fruit short-oblong to subglobose, orange-red, dark dotted, 10-12 mm. diameter.

*padifolia* Sarg. Fruit short-oblong, orange-red, dark dotted, 12-15 mm. diameter. Anthers described as yellow flushed with pink.

*pagensis* Sarg. Fruit short-oblong to slightly obovoid, dull orange-brown, about 10 mm. diameter.

*Paineriana* Sarg. Fruit subglobose to short-oblong, orange or orange-red, about 12 mm. diameter.

*pygmaea* Sarg. Fruit oblong-obovoid, dark crimson, pale dotted, 8-11 mm. diameter.

*Schweinitziana* Sarg. Fruit oblong, dark red, 8-9 mm. diameter.

*straminea* Beadle. Fruit pyriform, yellowish-green, 9-11 mm. diameter.

CC. Leaves at flowering time scabrate or villous above.

*communis* Beadle. Fruit globose or subglobose, red, 9–13 mm. diameter.  
*definita* Sarg. Leaves sometimes glabrous above. Fruit characters as given above.

*fulva* Sarg. Leaves sometimes glabrous above. Fruit characters as given above.

*infera* Sarg. Fruit obovoid, dark reddish-orange, dark dotted, 10–11 mm. diameter.

*minutiflora* Sarg. Fruit short-oblong or subglobose, dull orange or orange and green with pale lenticles, about 10 mm. diameter.

*Peckii* Sarg. Fruit subglobose to short-oblong or ovoid, light yellow-green or red tinged, dark dotted, 8–10 mm. diameter.

*scabra* Sarg. Fruit subglobose or short-oblong, green, about 12 mm. diameter.

*Stonei* Sarg. Fruit obovoid, light yellow or greenish-yellow, 12–14 mm. diameter.

BB. Stamens about 20 (15–20)

C. Leaves at flowering time glabrous or nearly so

*Bealii* Sarg. Stamens usually about 10. Fruit characters as given above.

*Darlingtoniana* Sarg. (?) Flowers unknown; fruit characters as given above.

*gilva* Beadle. Fruit subglobose or short-pyriform, yellow or greenish-yellow, 6–8 mm. diameter.

*gratiosa* Sarg. Fruit short-oblong or slightly obovoid, green blotched with red, 8–10 mm. diameter. Young leaves sometimes slightly villous above.

*macilenta* Beadle. Fruit globose or subglobose, red, 7–9 mm. diameter.

*mendosa* Beadle. Fruit globose or subglobose, red, 8–10 mm. diameter.

*pallens* Beadle. Fruit subglobose to oval, yellow or greenish-yellow, 8–11 mm. diameter.

*Sargentii* Beadle. Fruit globose or subglobose, yellow or orange-yellow, flushed with red, 10–13 mm. diameter.

*tecta* Beadle. Fruit globose, red, 10–13 mm. diameter.

CC. Leaves at flowering time scabrate or villous

*gratiosa* Sarg. Young leaves sometimes glabrous or nearly so. Fruit characters as given above.

*Harveyana* Sarg. Fruit subglobose, orange, about 10 mm. diameter.

AA. Anthers white, cream or yellow

B. Stamens about 10 (7–15) (BB see p. 93)

C. Leaves at flowering time glabrous or nearly so

*apposita* Sarg. Fruit oblong-obovoid, reddish-green or yellowish-bronze, 9–11 mm. diameter.

*Bartoniana* Sarg. Fruit subglobose to short-oblong, dark crimson or blotched with green, 10–12 mm. diameter.

*Boyntonii* Beadle. Fruit globose or subglobose, yellow-green flushed with red, 10–15 mm. diameter.



- cornellii* Sarg. Fruit obovoid, light orange-yellow, dark dotted, 10-12 mm. diameter.
- cuprea* Sarg. Fruit subglobose to short-oblong, russet or dark red, 8-9 mm. diameter.
- Darlingtoniana* Sarg. (?) Flowers unknown. Fruit characters as given above.
- flavida* Sarg. Fruit subglobose to short-oblong, dull yellow or orange-yellow tinged with red, 10-12 mm. diameter.
- foetida* Ashe. Fruit subglobose, dull olive-green, red or russet mottled, 11-14 mm. diameter.
- fructuosa* Sarg. Fruit depressed-globose, deep orange-red, about 12 mm. diameter.
- intricata* Lange. Fruit subglobose to ellipsoidal, 7-9 mm. diameter.
- Kinzeræ* Sarg. Fruit oblong-obovoid, russet-orange or red tinged, 10-12 mm. diameter.
- lentula* Sarg. Fruit depressed-globose, deep dull red, about 13 mm. diameter.
- memoralis* Sarg. Fruit subglobose or slightly obovoid, bright clear red, about 10 mm. diameter.
- neocanbyi* Sarg. Fruit subglobose to short-oblong, dull orange to reddish-orange, dark dotted, 12-15 mm. diameter.
- padifolia* Sarg. Stamens described as yellow flushed with pink (usually pink). Fruit characters as given above.
- pusilla* Sarg. Fruit short-oblong, crimson blotched with green, dark dotted, 12-14 mm. diameter. Leaves sometimes slightly scabrous above.
- resecta* Ashe. Fruit globular, bright scarlet, 14-17 mm. diameter.
- reses* Ashe. Fruit subglobose, dark red or mottled with russet or green, 15-16 mm. diameter. Young leaves sometimes slightly scabrous.
- sexatilis* Sarg. Fruit short-oblong, dark orange or reddish-orange, dark dotted, 9-10 mm. diameter.
- stellata* Sarg. Fruit subglobose, dull reddish-green, 11-13 mm. diameter.
- tenuissima* Sarg. Fruit obovoid, dull red, 8-10 mm. diameter.
- Twiningii* Sarg. Fruit short-oblong to subglobose, green tinged with red, 10-12 mm. diameter.
- verecunda* Sarg. Fruit oblong to oblong-obovoid, crimson, about 7 mm. diameter.
- virgata* Ashe. Fruit depressed-globose, russet-red dotted with green and orange, 12-16 mm. diameter.
- CC. Leaves at flowering time scabrate or villous above
- abjecta* Sarg. Fruit subglobose or slightly longer than wide, greenish-orange, about 15 mm. diameter.
- alpista* Sarg. Fruit ovoid, dull red blotched with green, 10-12 mm. diameter.

*biltmoreana* Beadle. Fruit depressed-globose, green, yellow or orange, 10-15 mm. diameter.

*callista* Sarg. Fruit oblong, orange-red, 8-9 mm. diameter.

*confusa* Sarg. Fruit short-oblong to subglobose, russet-green or tinged with red, 12-17 mm. diameter.

*contortula* Sarg. Fruit subglobose, green blotched with red, about 10 mm. diameter.

*Delosii* Sarg. Fruit short-oblong to slightly obovoid, orange tinged with red, pale dotted, 10-12 mm. diameter.

*modesta* Sarg. Fruit subglobose, rarely oblong or pyriform, bright yellow or orange-red, dark mottled, 8-9 mm. diameter.

*premora* Ashe. Fruit globose, bright green, dark mottled, 10-12 mm. diameter.

*pusilla* Sarg. Leaves usually glabrous or nearly so. Fruit characters as given above.

*reses* Ashe. Young leaves usually glabrous or nearly so. Fruit characters as given above.

*villicarpa* Sarg. Fruit short-oblong to subglobose, orange yellow or tinged with red, pale dotted, 10-12 mm. diameter.

BB. Stamens about 20 (15-20)

C. Leaves at flowering time glabrous or nearly so

*alba* Beadle. Fruit subglobose, red, 10-12 mm. diameter.

*Darlingtoniana* Sarg. (?) Flowers unknown. Fruit characters as given above.

*eximia* Beadle. Fruit globose, red, 8-10 mm. diameter.

*inanis* Beadle. Fruit short-oval or slightly pyriform, red or ruddy, 6-8 mm. diameter.

*venusta* Beadle. Fruit oval, greenish-red, dull red or bright red, 9-13 mm. diameter.

CC. Leaves at flowering time scabrate or villous above

*Craytonii* Beadle. Fruit oblong to obovoid, red or ruddy, 9-12 mm. diameter.

## VI. *Tenuifoliae*

Anthers red, rose, pink or purple in this group.

A. Stamens normally 10 or less (AA see p. 97)

B. Leaves of flowering branches narrowed or attenuate at base (on vigorous shoots rounded to truncate) (BB see p. 95)

C. Corymbs glabrous or nearly so (CC see p. 95)

*acuminata* Sarg. Fruit short-oblong to subglobose, crimson, 8-9 mm. diameter.

*acutiloba* Sarg. Fruit oblong to obovoid, bright scarlet, 8-10 mm. diameter.

*angustisepala* Sarg. Fruit short-oblong to slightly obovoid, scarlet, about 10 mm. diameter.

*antheina* Sarg. Fruit short-oblong, scarlet, pale dotted, 9-12 mm. diameter.

- apiomorpha* Sarg. Fruit obovoid, rarely short-oblong, bright reddish-purple, pale dotted, 8-12 mm. diameter. Corymbs sometimes slightly villous.
- ascendens* Sarg. Fruit oblong or oblong-obovoid, dark crimson, 8-9 mm. diameter.
- bella* Sarg. Fruit short-oblong to slightly obovoid, scarlet, 8-9 mm. diameter.
- Boothiana* Sarg. Fruit short-oblong, bright orange, pale dotted, 8-9 mm. diameter.
- Collinsiana* Sarg. Fruit short-oblong, dark crimson, about 8 mm. diameter.
- colorata* Sarg. Fruit obovoid, crimson, pale dotted, about 12 mm. diameter.
- crudelis* Sarg. Fruit oblong, crimson, pale dotted, 9-10 mm. diameter. Corymbs sometimes slightly villous.
- culta* Sarg. Fruit short-oblong, ovoid or subglobose, crimson, pale dotted, 9-10 mm. diameter.
- cyanophylla* Sarg. Fruit subglobose to short-oblong, reddish-purple with pale lenticles, 9-15 mm. diameter.
- delucida* Sarg. Fruit oblong, bright scarlet, 9-10 mm. diameter. Leaves of terminal shoots sometimes subcordate.
- Eganii* Ashe. Fruit bright red, oblong, 8-13 mm. diameter.
- exigua* Ashe. Fruit obovoid, bright scarlet, 10-12 mm. diameter.
- firma* Sarg. Fruit short-oblong to obovoid, crimson, 10-12 mm. diameter.
- flammata* Sarg. Fruit short-oblong, scarlet, pale dotted, 8-10 mm. diameter.
- florea* Sarg. Fruit oblong, scarlet, 10-12 mm. diameter.
- glaucophylla* Sarg. Fruit short-oblong, rarely ovoid, bright scarlet, about 10 mm. diameter.
- Gruberi* Ashe. Fruit globular-pyriform, light green with russet or scarlet blotches, about 11 mm. diameter.
- Hadleyana* Sarg. Fruit short-oblong, scarlet, pale dotted, 9-10 mm. diameter. Corymbs sometimes slightly villous.
- leptopoda* Sarg. Fruit obovoid, bright cherry-red, pale dotted, 8-9 mm. diameter.
- longipetiolata* Sarg. Fruit oblong-obovoid, dark red, 8-9 mm. diameter.
- marcida* Ashe. Fruit depressed-globose, dark crimson, 13-15 mm. diameter.
- merita* Sarg. Fruit short-oblong to slightly obovoid, crimson, blotched with green and pale dotted, 9-10 mm. diameter.
- miniata* Ashe. Fruit oblong, scarlet or mottled with olive or russet, 9-13 mm. diameter.
- nescia* Sarg. Fruit short-oblong or slightly obovoid, scarlet, pale dotted, 9-10 mm. diameter.
- pallidula* Sarg. Fruit short-oblong, scarlet, 7-8 mm. diameter.

- parviflora* Sarg. Fruit oblong-obovoid, crimson, pale dotted, about 10 mm. diameter.
- pastorum* Sarg. Fruit oblong, bright scarlet with pale lenticles, about 10 mm. diameter. Stamens sometimes 20.
- paucispina* Sarg. Fruit pyriform or globose-pyriform, crimson or purplish, pale dotted, 12-15 mm. diameter.
- pentandra* Sarg. Fruit dark crimson with pale lenticles, 12-15 mm. diameter.
- perlaevis* Ashe. Fruit pyriform, obovoid or rarely oblong, dark dull red blotched with orange or russet, 8-12 mm. diameter.
- porracea* Ashe. (?) Fruit oblong, dark red, 10-13 mm. diameter.
- propinqua* Ashe. Fruit globose, green, russet and dull red, 12-13 mm. diameter.
- pumila* Sarg. Fruit oblong, dark red, 8-10 mm. diameter.
- rubrocarnea* Sarg. Fruit short-oblong to subglobose, scarlet, dark dotted, 12-14 mm. diameter. Corymbs sometimes slightly villous.
- saturata* Sarg. Fruit short-oblong to subglobose, dark red, about 10 mm. diameter.
- sequax* Ashe. Fruit globose or subglobose, dark red or crimson blotched with green or russet, 12-15 mm. diameter.
- serena* Sarg. Fruit oblong, scarlet with pale lenticles, about 10 mm. diameter.
- siderea* Sarg. Fruit obovoid, yellow-green, becoming dark red, 9-10 mm. diameter.
- suavis* Sarg. Fruit short-oblong, orange-red, pale dotted, 8-9 mm. diameter.
- tarda* Sarg. Fruit oblong to subglobose, bright scarlet with pale lenticles, becoming crimson, 11-14 mm. diameter. Stamens sometimes 15-20.
- tenuifolia* Britton. Fruit pyriform, 8-9 mm. diameter. Color not described.
- viridimontana* Sarg. Fruit short-oblong, crimson, pale dotted, about 10 mm. diameter.
- Wootoniana* Egglest. (?) Fruit ellipsoidal, red, 6-10 mm. diameter. Color of anthers not described.

CC. Corymbs sometimes slightly villous

*apiomorpha* Sarg. Fruit characters as given above.

*crudelis* Sarg. Fruit characters as given above.

*Hadleyana* Sarg. Fruit characters as given above.

*rubrocarnea* Sarg. Fruit characters as given above.

BB. Leaves of flowering branches mostly not conspicuously narrowed at base, rounded to truncate (on vigorous shoots truncate to cordate)

C. Corymbs glabrous

*blandita* Sarg. Fruit oblong, scarlet with pale lenticles, 8-9 mm. diameter.

*brumalis* Ashe. Fruit subglobose, dull, rather dark red, green mottled, 10-12 mm. diameter.



- Claytoniana* Sarg. Fruit subglobose to short-oblong, scarlet, about 10 mm. diameter.
- condensa* Sarg. Fruit obovoid, yellowish-red, 8-10 mm. diameter.
- Damei* Sarg. Fruit oblong to obovoid, bright cherry-red, minutely dotted, about 8 mm. diameter.
- demissa* Sarg. Fruit short-oblong to subglobose or slightly obovoid, scarlet, 8-9 mm. diameter.
- dissimilis* Sarg. Fruit short-oblong to obovoid. dull red, becoming dark red, about 12 mm. diameter.
- fucata* Sarg. Fruit short-oblong to oval, crimson, 8-9 mm. diameter.
- fucosa* Sarg. Fruit oblong, scarlet, pale dotted, 9-12 mm. diameter.
- genialis* Sarg. Fruit oblong, dark crimson, pale dotted, 8-10 mm. diameter.
- gracilipes* Sarg. Fruit narrow-obovoid, scarlet, 6-7 mm. diameter.
- Habereri* Sarg. Fruit oval to obovoid, crimson, pale dotted, about 5 mm. diameter.
- heidelbergensis* Sarg. Fruit obovoid, rarely short-oblong or globose, scarlet, blotched with russet, pale dotted, 12-15 mm. diameter.
- ignea* Sarg. Fruit short-oblong, scarlet, pale dotted, 8-9 mm. diameter.
- insignata* Sarg. Fruit short-oblong, dull red, 8-9 mm. diameter.
- insolita* Sarg. Fruit broad-ovoid, bright cherry-red, dark dotted, 12-13 mm. diameter.
- lata* Sarg. Fruit oblong, bright scarlet, about 7 mm. diameter.
- macrosperma* Ashe. Fruit somewhat longer than thick, dark but bright red, 13-18 mm. diameter.
- matura* Sarg. Fruit oblong, bright scarlet with pale lenticles, 12-15 mm. diameter.
- media* Sarg. Fruit obovoid, scarlet, 8-10 mm. diameter.
- modica* Sarg. Fruit globose, bright crimson, 8-10 mm. diameter.
- monstrata* Sarg. Fruit oblong, scarlet, pale dotted, 9-10 mm. diameter.
- Moyeriana* Sarg. Fruit obovoid to short-oblong, cherry-red, dark dotted, 10-11 mm. diameter.
- multifida* Ashe. (?) Fruit oblong, crimson, 9-11 mm. diameter.
- Napaea* Sarg. Fruit oblong-obovoid, dull red, 8-9 mm. diameter.
- ornata* Sarg. Fruit oblong, scarlet, 9-10 mm. diameter.
- otiosa* Ashe. Fruit oblong, russet becoming scarlet, 8-10 mm. diameter.
- pactilis* Ashe. (?) Fruit obovoid, scarlet, orange or russet, 11-12 mm. diameter.
- Paddockii* Sarg. Fruit short-oblong to obovoid, scarlet, 8-10 mm. diameter.
- Paineana* Sarg. Fruit long-obovoid, scarlet, pale dotted, about 10 mm. diameter.
- parca* Ashe. (?) Fruit globose or slightly oblong, scarlet-mottled with orange, about 10 mm. diameter.
- perlaeta* Sarg. Fruit short-oblong to slightly obovoid, scarlet, pale dotted, 8-9 mm. diameter.

*populnea* Ashe. Fruit globular or oblong, dull red mottled with green, russet and scarlet, about 14 mm. diameter.

*propensa* Sarg. Fruit short-oblong, scarlet, pale dotted, 8-10 mm. diameter.

*Randiana* Sarg. Fruit oblong, scarlet, pale dotted, 8-9 mm. diameter.

*recta* Sarg. Fruit short-oblong, scarlet, pale dotted, 8-9 mm. diameter.

*retrusa* Ashe. Fruit obovoid or oblong, orange-scarlet, 8-10 mm. diameter.

*roanensis* Ashe. Fruit oblong, bright red, about 8 mm. diameter.

*rubicunda* Sarg. Fruit oblong, scarlet, pale dotted, about 8 mm. diameter.

Corymbs sometimes slightly villous.

*rufipes* Ashe. Fruit oblong, scarlet mottled with green or russet, 9-11 mm. diameter.

*sarniensis* Sarg. Fruit short-oblong, light orange-red, pale dotted, 7-8 mm. diameter.

*sextilis* Sarg. Fruit subglobose to short-oblong, scarlet, 12-14 mm. diameter.

*Slavinii* Sarg. Fruit short-oblong or slightly obovoid, bright orange-red, pale dotted, about 10 mm. diameter.

*spatifolia* Sarg. Fruit short-oblong, crimson, pale dotted, 8-9 mm. diameter.

*Streeterae* Sarg. Fruit oblong, scarlet, pale dotted, about 8 mm. diameter.

*tenella* Ashe. Fruit oblong, dark orange, scarlet or mottled, 9-10 mm. diameter. Leaves sometimes narrowed at base.

*tenera* Ashe. Fruit oblong, bright scarlet, 9-10 mm. diameter.

*tenuiloba* Sarg. Fruit oblong-obovoid, scarlet, about 10 mm. diameter.

*trachyphylla* Sarg. Fruit obovoid, crimson, pale dotted, 12-15 mm. diameter.

*vittata* Ashe. Fruit subglobose or short-cylindric, red-scarlet blotched with olive or russet, 14-18 mm. diameter.

CC. Corymbs villous at flowering time

*rubicunda* Sarg. Corymbs sometimes nearly or quite glabrous. Fruit characters as given above.

*uber* Ashe. Fruit oblong, dark, dull red mottled with orange, 12-15 mm. diameter.

AA. Stamens 15-20 (rarely less)

B. Leaves of flowering branches usually narrowed or attenuate at base (on vigorous shoots rounded or truncate)

C. Corymbs glabrous at flowering time

*alnorum* Sarg. Fruit oblong-obovoid, bright scarlet, about 8 mm. diameter.

*asperata* Sarg. Fruit obovoid to short-oblong, scarlet, pale dotted, 14-16 mm. diameter. Corymbs sometimes slightly villous.

*basilica* Beadle. Fruit subglobose, red, 12-15 mm. diameter.

*conferta* Sarg. Fruit short-oblong, orange-red, pale dotted, about 8 mm. diameter.

*decens* Ashe. Fruit oblong, subglobose or slightly obovoid, scarlet or orange spotted, 10-12 mm. diameter.

*xanthophylla* Sarg. Fruit short-oblong, orange-red, pale dotted, 10-12 mm. diameter.

AA. Leaves of flowering branches mostly broad or rounded at base (on vigorous shoots truncate to cordate)

*albicans* Ashe. (?) Fruit globular, dark red, 10-13 mm. diameter.

*allecta* Sarg. Fruit obovoid, bright orange-red, dark dotted, 8-10 mm. diameter.

*ampliata* Sarg. Fruit short-oblong, dull scarlet, 9-10 mm. diameter.

*delicata* Sarg. Fruit ovoid to oblong, dull red, 10-12 mm. diameter.

*diffusa* Sarg. Fruit subglobose to short-oblong, scarlet, dark dotted, 13-15 mm. diameter.

*drymophila* Sarg. Fruit globose, red or greenish, 10-11 mm. diameter.

*filipes* Ashe. Fruit obovoid, crimson or green, spotted, 10-12 mm. diameter.

*Maineana* Sarg. Fruit globose, dark scarlet with light spots, about 15 mm. diameter.

*medioxima* Sarg. Fruit subglobose, rarely short-oblong, dark red, pale dotted, 11-14 mm. diameter.

*opulens* Sarg. Fruit subglobose to short-obovoid, crimson, dark dotted, 13-15 mm. diameter.

*riparia* Ashe. (?) Color of anthers not given. Fruit globose, orange-yellow, 7-8 mm. diameter.

*stolonifera* Sarg. Fruit short-oblong to subglobose, scarlet, 10-11 mm. diameter.

### VIII. Pruinosae

A. Anthers pink, rose or purple (AA see p. 105)

B. Stamens about 10 (7-15) (BB see p. 101)

C. Leaves of flowering branches mostly narrowed or cuneate at base (on vigorous shoots rounded to truncate), at flowering time glabrous

*alacris* Sarg. Fruit short-oblong or slightly obovoid, bright red, 8-10 mm. diameter.

*aridula* Sarg. Fruit obovoid, dark red, pale dotted, 8-9 mm. diameter.

*bellula* Sarg. Fruit subglobose or broadly obovoid, dull crimson, pale dotted, 15-18 mm. diameter.

*brevipes* Peck. Fruit subglobose to depressed-globose, dull red blotched with red, 10-15 mm. diameter.

*deducta* Sarg. Fruit short-oblong to ovoid, green, 10-12 mm. diameter.

*disjuncta* Sarg. Fruit subglobose, green tinged with red, 12-14 mm. diameter.

*divisifolia* Sarg. Fruit depressed-globose, angled, dull red or blotched with green or russet, 14-17 mm. diameter.

*erubescens* Sarg. Fruit subglobose, pentagonal, purple-red, pale dotted, 12-15 mm. diameter. Leaves sometimes broader.

*franklinensis* Sarg. Fruit slightly obovoid to subglobose, dark red, 8-10 mm. diameter.

*incisa* Sarg. Fruit obovoid, green, red tinged or crimson, 10-12 mm. diameter.

*iracunda* Beadle. Fruit subglobose, red or red and green, 8–10 mm. diameter.

*Jesupii* Sarg. Fruit obovoid to short-oblong, bright scarlet, dark dotted, about 10 mm. diameter.

*levis* Sarg. Fruit obovoid, dull purple, 7–8 mm. diameter.

*Milleri* Sarg. Fruit obovoid, green becoming red, 8–10 mm. diameter.

*nemorosa* Sarg. Fruit short-oblong to obovoid, crimson, dark dotted, about 10 mm. diameter.

*numerosa* Sarg. Fruit obovoid, scarlet, pale dotted, 9–10 mm. diameter.

*ovatifolia* Sarg. Fruit obovoid, scarlet, dark dotted, 8–10 mm. diameter.

*placiva* Sarg. Fruit short-oblong or obovoid, bright orange-red, pale dotted, 10–12 mm. diameter.

*procera* Sarg. Fruit subglobose, crimson, pale dotted, 10–12 mm. diameter.

*pulchra* Sarg. Fruit short-oblong, cherry-red, 10–12 mm. diameter.

*radiata* Sarg. Fruit short-oblong, crimson, dark dotted, 15–17 mm. diam.

*remota* Sarg. Fruit subglobose or slightly obovoid, scarlet, 10–15 mm. diameter.

*rigida* Sarg. Fruit subglobose, angled, green, rose tinged, 10–12 mm. diameter.

*superata* Sarg. Fruit subglobose, green becoming crimson, dark dotted, 12–15 mm. diameter.

*uncta* Sarg. Fruit short-oblong, red, pale dotted, 10–12 mm. diameter.

CC. Leaves of flowering branches broader, mostly rounded, truncate or cordate at base

D. Leaves at flowering time glabrous or nearly so

*erubescens* Sarg. Fruit subglobose, pentagonal, purple-red, pale dotted, 12–15 mm. diameter.

*deltoides* Ashe. Fruit globular or depressed-globular, dark red, 15–17 mm. diameter.

*depressa* Ashe. (?) Color of anthers unknown. Fruit depressed-globose, dark red, 12–14 mm. diameter.

*macera* Sarg. Fruit subglobose to short-oblong, scarlet, dark dotted, about 10 mm. diameter.

*plana* Sarg. Fruit short-oblong, pale green becoming crimson, pale dotted, 10–12 mm. diameter.

*relicta* Sarg. Fruit subglobose, green flushed with red, 9–10 mm. diameter.

DD. Leaves at flowering time pubescent or scabrate above

*exornata* Sarg. Fruit subglobose, scarlet, dark dotted, 10–12 mm. diameter.

BB. Stamens about 20 (15–20)

C. Leaves of flowering branches mostly narrowed or cuneate at base (on vigorous shoots rounded to truncate, rarely subcordate) (CC see p. 104)

D. Leaves at flowering time glabrous or nearly so

*advena* Sarg. Fruit subglobose to slightly obovoid, green becoming reddish, about 15 mm. diameter. Leaves sometimes slightly villous.

*ambitiosa* Sarg. Fruit obovoid, crimson, green blotched, with dark dots, 10–12 mm. diameter. Leaves sometimes slightly villous.



*xanthophylla* Sarg. Fruit short-oblong, orange-red, pale dotted, 10-12 mm. diameter.

AA. Leaves of flowering branches mostly broad or rounded at base (on vigorous shoots truncate to cordate)

*albicans* Ashe. (?) Fruit globular, dark red, 10-13 mm. diameter.

*allecta* Sarg. Fruit obovoid, bright orange-red, dark dotted, 8-10 mm. diameter.

*ampliata* Sarg. Fruit short-oblong, dull scarlet, 9-10 mm. diameter.

*delicata* Sarg. Fruit ovoid to oblong, dull red, 10-12 mm. diameter.

*diffusa* Sarg. Fruit subglobose to short-oblong, scarlet, dark dotted, 13-15 mm. diameter.

*drymophila* Sarg. Fruit globose, red or greenish, 10-11 mm. diameter.

*filipes* Ashe. Fruit obovoid, crimson or green, spotted, 10-12 mm. diameter.

*Maineana* Sarg. Fruit globose, dark scarlet with light spots, about 15 mm. diameter.

*medioxima* Sarg. Fruit subglobose, rarely short-oblong, dark red, pale dotted, 11-14 mm. diameter.

*opulens* Sarg. Fruit subglobose to short-obovoid, crimson, dark dotted, 13-15 mm. diameter.

*riparia* Ashe. (?) Color of anthers not given. Fruit globose, orange-yellow, 7-8 mm. diameter.

*stolonifera* Sarg. Fruit short-oblong to subglobose, scarlet, 10-11 mm. diameter.

### VIII. Pruinosae

A. Anthers pink, rose or purple (AA see p. 105)

B. Stamens about 10 (7-15) (BB see p. 101)

C. Leaves of flowering branches mostly narrowed or cuneate at base (on vigorous shoots rounded to truncate), at flowering time glabrous

*alacris* Sarg. Fruit short-oblong or slightly obovoid, bright red, 8-10 mm. diameter.

*aridula* Sarg. Fruit obovoid, dark red, pale dotted, 8-9 mm. diameter.

*bellula* Sarg. Fruit subglobose or broadly obovoid, dull crimson, pale dotted, 15-18 mm. diameter.

*brevipes* Peck. Fruit subglobose to depressed-globose, dull red blotched with red, 10-15 mm. diameter.

*deducta* Sarg. Fruit short-oblong to ovoid, green, 10-12 mm. diameter.

*disjuncta* Sarg. Fruit subglobose, green tinged with red, 12-14 mm. diameter.

*divisifolia* Sarg. Fruit depressed-globose, angled, dull red or blotched with green or russet, 14-17 mm. diameter.

*erubescens* Sarg. Fruit subglobose, pentagonal, purple-red, pale dotted, 12-15 mm. diameter. Leaves sometimes broader.

*franklinensis* Sarg. Fruit slightly obovoid to subglobose, dark red, 8-10 mm. diameter.

*incisa* Sarg. Fruit obovoid, green, red tinged or crimson, 10-12 mm. diameter.

*iracunda* Beadle. Fruit subglobose, red or red and green, 8–10 mm. diameter.

*Jesupii* Sarg. Fruit obovoid to short-oblong, bright scarlet, dark dotted, about 10 mm. diameter.

*levis* Sarg. Fruit obovoid, dull purple, 7–8 mm. diameter.

*Milleri* Sarg. Fruit obovoid, green becoming red, 8–10 mm. diameter.

*nemorosa* Sarg. Fruit short-oblong to obovoid, crimson, dark dotted, about 10 mm. diameter.

*numerosa* Sarg. Fruit obovoid, scarlet, pale dotted, 9–10 mm. diameter.

*ovatifolia* Sarg. Fruit obovoid, scarlet, dark dotted, 8–10 mm. diameter.

*placiva* Sarg. Fruit short-oblong or obovoid, bright orange-red, pale dotted, 10–12 mm. diameter.

*procera* Sarg. Fruit subglobose, crimson, pale dotted, 10–12 mm. diameter.

*pulchra* Sarg. Fruit short-oblong, cherry-red, 10–12 mm. diameter.

*radiata* Sarg. Fruit short-oblong, crimson, dark dotted, 15–17 mm. diam.

*remota* Sarg. Fruit subglobose or slightly obovoid, scarlet, 10–15 mm. diameter.

*rigida* Sarg. Fruit subglobose, angled, green, rose tinged, 10–12 mm. diameter.

*superata* Sarg. Fruit subglobose, green becoming crimson, dark dotted, 12–15 mm. diameter.

*uncta* Sarg. Fruit short-oblong, red, pale dotted, 10–12 mm. diameter.

CC. Leaves of flowering branches broader, mostly rounded, truncate or cordate at base

D. Leaves at flowering time glabrous or nearly so

*erubescens* Sarg. Fruit subglobose, pentagonal, purple-red, pale dotted, 12–15 mm. diameter.

*deltoides* Ashe. Fruit globular or depressed-globular, dark red, 15–17 mm. diameter.

*depressa* Ashe. (?) Color of anthers unknown. Fruit depressed-globose, dark red, 12–14 mm. diameter.

*macera* Sarg. Fruit subglobose to short-oblong, scarlet, dark dotted, about 10 mm. diameter.

*plana* Sarg. Fruit short-oblong, pale green becoming crimson, pale dotted, 10–12 mm. diameter.

*relicta* Sarg. Fruit subglobose, green flushed with red, 9–10 mm. diameter.

DD. Leaves at flowering time pubescent or scabrate above

*exornata* Sarg. Fruit subglobose, scarlet, dark dotted, 10–12 mm. diameter.

BB. Stamens about 20 (15–20)

C. Leaves of flowering branches mostly narrowed or cuneate at base (on vigorous shoots rounded to truncate, rarely subcordate) (CC see p. 104)

D. Leaves at flowering time glabrous or nearly so

*advena* Sarg. Fruit subglobose to slightly obovoid, green becoming reddish, about 15 mm. diameter. Leaves sometimes slightly villous.

*ambitiosa* Sarg. Fruit obovoid, crimson, green blotched, with dark dots, 10–12 mm. diameter. Leaves sometimes slightly villous.

- amoena* Sarg. Fruit subglobose to short-oblong, dark red, 10–12 mm. diameter.
- aristata* Sarg. Fruit subglobose, bright red, 10–12 mm. diameter.
- ater* Ashe. Fruit oblong to obovoid, dark dull red mottled with green or olive, 10–12 mm. diameter.
- austera* Sarg. Fruit subglobose, dull green or reddish, 10–12 mm. diameter.
- bellatula* Sarg. Fruit short-oblong, green turning red, about 10 mm. diameter.
- bona* Sarg. Fruit depressed-globose, angular, dark olive-green or spotted with russet and orange, 12–14 mm. diameter.
- bronxensis* Sarg. Fruit subglobose, apple-green, dark dotted, 10–12 mm. diameter. Leaves sometimes villous or scabrous.
- casta* Sarg. Fruit obovoid, bright cherry-red, pale dotted, 8–10 mm. diameter.
- Clintoniana* Sarg. Fruit subglobose, angled, orange-red, pale dotted, 12–14 mm. diameter. Leaves sometimes slightly villous.
- comata* Sarg. Fruit depressed-globose, bright green becoming light cherry-red, about 16 mm. diameter. Leaves sometimes slightly villous above.
- Crawfordiana* Sarg. Fruit oval to pyriform-oval, dark orange-red blotched with yellow-green, pale dotted, 10–12 mm. diameter.
- denudata* Sarg. Fruit subglobose to ovoid-globose, russet-green to dark purplish red, 10–13 mm. diameter.
- festiva* Sarg. Fruit subglobose, dull red, 10–11 mm. diameter.
- fusca* Sarg. Fruit short-oblong, dull brown, 10–12 mm. diameter.
- gaudens* Sarg. Fruit pyriform, angled, deep orange-red, pale dotted, 11–14 mm. diameter.
- georgiana* Sarg. Fruit short-oblong, dull russet-green, 10–13 mm. diameter.
- gracilis* Sarg. Fruit depressed-globose, green tinged with red or orange, about 10 mm. diameter.
- horridula* Sarg. Fruit obovoid, green becoming dull red, dark dotted, about 10 mm. diameter.
- Howeana* Sarg. Fruit globose to depressed-globose, reddish-green to bright scarlet, 13–15 mm. (or often less) in diameter.
- immanis* Ashe. Fruit “discoid,” (or subglobose) bright green, crimson spotted, 13–16 mm. diameter.
- Kellermanii* Sarg. Fruit subglobose, red tinged with green, 14–18 mm. (or less) diameter.
- latiflora* Sarg. Fruit short-oblong, vermilion, pale dotted, 8–9 mm. diameter.
- obstipa* Sarg. Fruit obconic, crimson, pale dotted, 10–12 mm. diameter.
- pallescens* Sarg. Fruit short-oblong, cardinal-red, pale dotted, 10–12 mm. diameter.
- parvula* Sarg. Fruit ovoid to slightly obovoid, crimson, pale dotted, 10–12 mm. diameter.

*pellecta* Sarg. Fruit short-oblong to subglobose, dark red, 12-14 mm. diameter.

*pequotorum* Sarg. Fruit short-obovoid, dark crimson with dark lenticles, 11-13 mm. diameter.

*pilosa* Sarg. Fruit subglobose to broadly ovoid, dull dark crimson, 8-10 mm. diameter. Leaves sometimes slightly villous.

*quinebaugensis* Sarg. Fruit oblong or slightly obovoid, light red or purplish, 8-9 mm. diameter.

*Ruthiana* Sarg. Fruit depressed-globose or short-oblong, bright apple-green, turning red, about 10 mm. diameter. Leaves sometimes slightly villous.

*scitula* Sarg. Fruit subglobose, crimson, pale dotted, 9-11 mm. diameter.

*sitiens* Ashe. Fruit obovoid, green mottled with russet, 12-14 mm. (or less) diameter.

*torta* Sarg. Fruit short-oblong, angled, light yellow or russet-green, dark dotted, 8-11 mm. diameter.

*tumida* Sarg. Fruit subglobose, dull crimson, 14-15 mm. diameter.

*viatica* Ashe. Fruit globose, dull green mottled with pink and russet, about 15 mm. (or less) diameter.

*virella* Ashe. Fruit depressed-globose, yellowish-green blotched with pink, olive or russet, about 13 mm. diameter. Leaves sometimes slightly pubescent.

*Wilmorensis* Sarg. Fruit subglobose to short-oblong, green becoming reddish, 10-12 mm. diameter.

DD. Leaves at flowering time scabrous or pubescent

*advena* Sarg. Leaves sometimes glabrous. Fruit characters as given above.

*ambitiosa* Sarg. Leaves sometimes nearly or quite glabrous. Fruit characters as given above.

*bronxensis* Sarg. Leaves sometimes nearly glabrous. Fruit characters as given above.

*Clintoniana* Sarg. Leaves sometimes glabrous or nearly so. Fruit characters as given above.

*comata* Sarg. Leaves sometimes nearly or quite glabrous. Fruit characters as given above.

*decorata* Sarg. Fruit depressed-globose or short-oblong, angled, dark red, dark dotted, 8-10 mm. diameter.

*pelacris* Sarg. Fruit subglobose to obovoid, green becoming red, 10-12 mm. diameter.

*pilosa* Sarg. Young leaves sometimes nearly or quite glabrous. Fruit characters as given above.

*platycarpa* Sarg. Fruit short-oblong, angled, dull red, dark dotted, 10-12 mm. diameter. Leaves sometimes nearly glabrous.

*Ruthiana* Sarg. Leaves sometimes nearly or quite glabrous. Fruit characters as given above.



*virella* Ashe. Leaves sometimes glabrous. Fruit characters as given above.

CC. Leaves of flowering branches broader, mostly rounded, truncate or cordate at base

D. Leaves at flowering time glabrous or nearly so

*amplifica* Sarg. Fruit depressed-globose, light greenish-yellow to dark russet, 10–12 mm. diameter.

*angulata* Sarg. Fruit depressed-ovoid, pentagonal, light greenish-yellow becoming dark purplish-red, dark dotted, 15–16 mm. diameter.

*arcana* Beadle. Fruit subglobose, obtusely angled, red or ruddy, 12–15 mm. diameter.

*beata* Sarg. Fruit oblong to oblong-obovoid, crimson, pale dotted, 9–10 mm. diameter.

*bracteata* Sarg. Fruit subglobose, crimson, pale dotted, 12–14 mm. diameter.

*calliantha* Sarg. Fruit short-oblong, angled, pink, about 10 mm. diameter.

*comparata* Sarg. Fruit obovoid to oval, crimson, 9–10 mm. diameter.

*confragosa* Sarg. Fruit short-oblong to obovoid, scarlet, dark dotted, about 10 mm. (or more) diameter.

*dunmorensis* Sarg. Fruit obovoid, green becoming dull red, 10–12 mm. (or more) diameter.

*Gattingeri* Ashe. Fruit globular, dark red, 8–11 mm. diameter.

*leiophylla* Sarg. Fruit obovoid, dark green becoming bright red, 12–14 mm. diameter. (Anthers described as pale yellow, but apparently through error.)

*Lennoniana* Sarg. Fruit ovoid to oblong, dark crimson, pale dotted, 8–10 mm. diameter.

*Mackenzii* Sarg. (?) Fruit subglobose to short-oblong, green becoming lurid red, 10–12 mm. diameter. Color of anthers unknown.

*macrocalyx* Sarg. Fruit short-oblong, slightly angled, red, pale dotted, 10–12 mm. diameter.

*oblita* Sarg. Fruit obovoid, crimson, pale dotted, 9–10 mm. diameter.

*perampla* Sarg. Fruit short-oblong, dull red, 10–12 mm. diameter.

*philadelphica* Sarg. Fruit depressed-globose, green, dark dotted, 10–15 mm. diameter.

*prominens* Sarg. Fruit broad-obovoid or short-oblong, green with purplish cheek, 12–14 mm. diameter.

*pruinosa* K. Koch. Fruit subglobose, green becoming red, 10–12 mm. diameter.

*ramosa* Sarg. Fruit short-oblong to oval, red, punctate, 10–11 mm. diameter.

*rubicundula* Sarg. Fruit subglobose or depressed-globose, green becoming red tinged, pale dotted, 13–14 mm. diameter.

*seclusa* Sarg. Fruit subglobose, angled, light orange-red blotched with green, 13–15 mm. (or less) diameter.

*seducta* Sarg. Fruit depressed-globose, green blotched with red, 10–11 mm. diameter.

DD. Leaves at flowering time villous beneath  
*aspera* Sarg. Fruit short-oblong to subglobose, scarlet, 10-12 mm. diameter.

AA. Anthers white, cream or yellow

B. Stamens about 10

C. Leaves of flowering branches mostly cuneate or narrowed at base (on vigorous shoots rounded to truncate, rarely subcordate)

D. Leaves at flowering time glabrous

*brachypoda* Sarg. Fruit subglobose, green, red tinged, becoming dull red, 10-12 mm. diameter.

*delawarensis* Sarg. Fruit subglobose, dark red, 11-12 mm. diameter.

*rara* Sarg. Fruit depressed-globose, dull dark red, 12-14 mm. diameter.

DD. Leaves at flowering time scabrous or pubescent

*inutila* Sarg. Fruit short-oblong, dull greenish-red, pale dotted, about 10 mm. diameter. Leaves scabrate above.

*sicca* Sarg. Fruit subglobose to short-oblong, becoming light orange-yellow, pale dotted, about 10 mm. diameter. Leaves more or less villous above.

C. Leaves of flowering branches broader, mostly rounded to truncate at base (on vigorous shoots cordate), at flowering time glabrous

*depressa* Ashe. (?) Color of anthers unknown. Fruit characters as given above.

BB. Stamens about 20 (15-20)

C. Leaves of fruiting branches mostly cuneate or narrowed at base (on vigorous shoots rounded or truncate, rarely subcordate)

D. Leaves at flowering time glabrous

*ambitiosa* Sarg. Fruit obovoid, crimson blotched with green, pale dotted, 10-12 mm. (or more) diameter. Anthers described as yellow faintly tinged with pink in bud.

*aperta* Sarg. Fruit subglobose, dull green, red tinged, about 10 mm. diameter.

*bedfordensis* Sarg. Fruit short-oblong to slightly obovoid, green turning pale red, dark dotted, 8-10 mm. diameter.

*caerulescens* Sarg. Fruit obovoid, dull red, 7-8 mm. diameter.

*callida* Beadle. Fruit depressed-globose, green and red or russet and red, 8-10 mm. diameter.

*callosa* Sarg. Fruit globose or depressed-globose, green becoming dark red or cardinal, blotched and punctate with dark olive-green or russet, 13-16 mm. diameter.

*cestrica* Sarg. Fruit subglobose to obovoid, dark crimson, dark dotted, 12-15 mm. diameter.

*cognata* Sarg. Fruit pyriform or oblong (or depressed-globose), 12-14 mm. diameter.

*conjuncta* Sarg. Fruit subglobose or depressed-globose, dull orange-red blotched with green, dark dotted, about 10 mm. diameter.

*duracina* Sarg. Fruit subglobose to slightly obovoid, red blotched with green, 8-10 mm. diameter.

- Ferrissii* Ashe. Fruit oblong or pyriform, crimson, 8–13 mm. diameter.
- formosa* Sarg. Fruit oblong to slightly obovoid, scarlet with pale lenticles, about 10 mm. diameter.
- glareosa* Ashe. Fruit globose, bright scarlet, about 15 mm. diameter. Leaves sometimes slightly villous beneath.
- insueta* Sarg. Fruit pyriform, dull green tinged with red, 9–10 mm. diameter.
- latifrons* Sarg. Fruit subglobose to short-oblong, dark red, green blotched, 14–15 mm. diameter.
- latisepala* Ashe. Fruit obovoid, dull green becoming crimson, dark dotted, 9–12 mm. diameter.
- littoralis* Sarg. Fruit obovoid, dark crimson, 10–11 mm. diameter.
- longipedunculata* Sarg. Fruit obovoid, dark green, red tinged, dark dotted, 8–10 mm. diameter.
- magnifolia* Sarg. Fruit subglobose, angled, dull red with dark blotches, about 15 mm. (or less) diameter.
- onusta* Ashe. Fruit globose, dark red, 14–16 mm. (or less) diameter.
- perjucunda* Sarg. Fruit short-oblong to ovoid, orange-red becoming crimson, dark dotted, 10–12 mm. diameter.
- Porteri* Britton. Fruit pyriform or short-oblong, crimson, dark dotted, 9–10 mm. diameter.
- rubro-lutea* Sarg. Fruit subglobose or obovoid, light orange-red, dark dotted, 12–15 mm. diameter.
- russata* Sarg. Fruit obovoid, pale red, about 10 mm. diameter.
- rustica* Beadle. Fruit subglobose, obtusely angled and swelled below middle, red and green, becoming dull red, 7–11 mm. diameter.
- Shaferi* Ashe. Fruit subglobose, dark red or green mottled, 14–16 mm. (or less) diameter.
- tribulosa* Sarg. Fruit short-oblong to subglobose, dull green, red tinged, about 10 mm. diameter.
- uplandia* Sarg. Fruit subglobose to short-oblong or slightly obovoid, dark deep red, pale dotted, 14–15 mm. diameter.
- vicinalis* Beadle. Fruit pyriform, red or ruddy, 9–12 mm. diameter.
- DD. Leaves at flowering time more or less villous or pubescent
- ellipticifolia* Sarg. Fruit short-oblong to subglobose, dull red, about 10 mm. diameter.
- ingrata* Ashe. Fruit subglobose, dull red, 12–14 mm. diameter.
- lecta* Sarg. Fruit obovoid, light yellow-green, becoming red, 13–15 mm. diameter.
- locuples* Sarg. Fruit subglobose, dull green, red tinged, 12–14 mm. diameter.
- CC. Leaves of flowering branches broader, mostly rounded or truncate (on vigorous shoots cordate); glabrous at flowering time
- augusta* Sarg. Fruit pyriform or at maturity globose or depressed-globose, angled, red or crimson or blotched with olive-green, 10–14 mm. diameter.

- incompta* Sarg. Fruit subglobose or depressed-globose, dull red, pale dotted, about 10 mm. diameter.
- jejuna* Sarg. Fruit short-oblong to ovoid, angled, dull green, 7–8 mm. diameter.
- Mackenzii* Sarg. (?) Color of anthers unknown. Fruit characters as given above.
- patrum* Sarg. Fruit short-oblong to slightly obovoid, dull green, dark dotted, 8–10 mm. diameter.

### IX. Coccineae

- A. Anthers red, pink, rose or purple (AA see p. 109)
- B. Stamens about 10 (5–10)
- D. Corymbs at flowering time glabrous or nearly so
- cristata* Ashe. Fruit globose or pyriform, scarlet or darker, 15–20 mm. diameter. Corymbs sometimes slightly villous.
- delecta* Sarg. Fruit subglobose to slightly obovoid, scarlet becoming purple, 18–20 mm. diameter. Corymbs sometimes slightly villous.
- fretalis* Sarg. Fruit oblong to obovoid, crimson, about 10 mm. diameter.
- Holmesiana* Ashe. Fruit obovoid to ellipsoid, crimson, dark dotted, 8–11 mm. diameter. Corymbs villous in varieties.
- Letchworthiana* Sarg. Fruit obovoid, scarlet, pale dotted, 10–11 mm. diameter.
- neofaxonii* Sarg. Fruit obovate, bright cherry-red, pale dotted, 10–12 mm. diameter.
- pedicellata* Sarg. Fruit oblong, bright scarlet with dark lenticles, 12–18 mm. diameter.
- polita* Sarg. Fruit subglobose to short-oblong, rarely broadly obovoid, bright cherry-red blotched with green or yellow, dark dotted, 9–11 mm. diameter.
- Thayeri* Sarg. Fruit subglobose to short-oblong or obovoid, orange-red with pale lenticles, 8–10 mm. diameter.
- DD. Corymbs at flowering time villous or pubescent
- acclivis* Sarg. Fruit short-oblong, yellowish-red, pale dotted, about 12 mm. (or more) diameter.
- arcuata* Ashe. Fruit oblong-globular, scarlet or mottled with orange and russet, 11–13 mm. diameter.
- assurgens* Sarg. Fruit oblong or slightly obovoid, dull red or crimson, 10–15 mm. diameter. Stamens sometimes 20.
- aulica* Sarg. Fruit short-oblong or slightly obovoid, orange-red with pale lenticles, about 15 mm. diameter.
- Burkeana* Sarg. Fruit subglobose to short-oblong or slightly obovoid, crimson, pale dotted, 10–12 mm. diameter.
- caesa* Ashe. Fruit subglobose or oblong, bright scarlet, 12 mm. diameter.
- confinis* Sarg. Fruit short-oblong, scarlet, pale dotted, 8–9 mm. diameter.
- cristata* Ashe. Corymbs usually glabrous. Fruit characters as given above.



*delecta* Sarg. Corymbs sometimes glabrous. Fruit characters as given above.

*Eamesii* Sarg. Fruit short-oblong to slightly ovoid, bright cherry-red, dark dotted, 18-20 mm. diameter.

*elongata* Sarg. Fruit oblong-obovoid, crimson, pale dotted, about 8 mm. diameter.

*fluviatilis* Sarg. Fruit oblong, rarely obovoid, crimson, 8-10 mm. diameter.

*Holmesiana* var. *tardipes* Sarg. Fruit as in species.

*lenta* Ashe. Fruit pyriform, scarlet, 10-14 mm. diameter.

*lobulata* Sarg. Fruit oblong, bright crimson with pale lenticles, about 10 mm. diameter.

*Pringlei* Sarg. Fruit oblong, dark dull red with pale lenticles, 15-16 mm. diameter.

*pura* Sarg. Fruit oval to slightly obovoid, bright orange-red, dark dotted, 8-10 mm. diameter.

*sejuncta* Sarg. Fruit subglobose to oval, crimson, pale dotted, 13-15 mm. (or less) diameter.

*sertata* Sarg. Fruit subglobose to slightly obovoid, bright red becoming crimson, pale dotted, 10-14 mm. diameter.

*uticaensis* Sarg. Fruit short-oblong, scarlet, pale dotted, 12-13 mm. diameter.

*vivida* Sarg. Fruit obovoid, dull orange-red blotched with yellow, 9-10 mm. diameter.

BB. Stamens about 20 (15-20)

D. Corymbs at flowering time glabrous or nearly so

*contigua* Sarg. Fruit oblong to obovoid, scarlet, pale dotted, 8-10 mm. diameter.

*limosa* Sarg. Fruit short-oblong, crimson, pale dotted, 8-10 mm. diameter.

Corymbs often slightly villous.

*magniflora* Sarg. Fruit short-obovoid, scarlet, pale dotted, about 14 mm. diameter.

*miranda* Sarg. Fruit obovoid, scarlet, pale dotted, about 10 mm. diameter.

*illicebrosa* Sarg. Fruit obovoid, crimson, pale dotted, 12-13 mm. diameter.

*Putnamiana* Sarg. Fruit depressed-globose, green turning red, punctate, about 15 mm. diameter.

*splendida* Sarg. Fruit short-oblong to obovoid, crimson, pale dotted, 9-10 mm. diameter.

DD. Corymbs at flowering time villous or pubescent

*assurgens* Sarg. Stamens sometimes 10. Fruit characters as given above.

*chippewaensis* Sarg. Fruit oblong-obovoid, crimson, dark dotted, 10-16 mm. diameter.

*Dayana* Sarg. Fruit obovoid, crimson, pale dotted, 15-18 mm. diameter.

*Gilbertiana* Sarg. Fruit obovoid, crimson, pale dotted, 13-15 mm. diameter.

*Hillii* Sarg. Fruit obovoid, crimson, pale dotted, 10-12 mm. diameter.

*limosa* Sarg. Corymbs sometimes glabrous or nearly so. Fruit characters as given above.

*Macounii* Sarg. Fruit oblong-obovoid, scarlet mottled with green, 10–12 mm. diameter.

*neolondinensis* Sarg. Fruit obovoid to short-oblong, bright red, pale dotted, 13–18 mm. diameter.

*steubenensis* Sarg. Fruit obovoid, scarlet, pale dotted, 9–10 mm. diameter.

AA. Anthers white, cream or yellow

B. Stamens about 10 (5–10). Corymbs at flowering time villous or pubescent

*perrara* Sarg. Fruit short-oblong to slightly obovoid, crimson, pale dotted, 10–12 mm. diameter.

BB. Stamens about 20. Corymbs at flowering time villous or pubescent

*conspecta* Sarg. Fruit subglobose to short-oblong, crimson, pale dotted, about 18 mm. diameter.

*irrasa* Sarg. Fruit oblong, dark red, pale dotted, about 10 mm. diameter.

### X. Molles

A. Anthers red, pink or rose

B. Stamens about 10

C. Leaves of flowering branches mostly cuneate or rounded at base (on vigorous shoots truncate or subcordate)

*anomala* Sarg. Fruit obovoid to oblong, crimson with pale lenticles, 15–20 mm. diameter.

*digna* Sarg. Fruit globose to slightly oblong, scarlet dotted with yellow or orange, 12–14 mm. diameter.

*Greggiana* Egglest. Fruit globose, brick-red, 10–12 mm. diameter.

*noelensis* Sarg. Fruit subglobose, orange-red, about 10 mm. diameter.

*Tracyi* Ashe. Fruit scarlet, subglobose, 10–15 mm. diameter.

*urbica* Sarg. Fruit pyriform, becoming subglobose to short-oblong, crimson, pale dotted, 10–15 mm. diameter.

CC. Leaves of flowering branches broader, mostly rounded, truncate or cordate at base (on vigorous shoots cordate)

*Ellwangeriana* Sarg. Fruit short-oblong, crimson, 15–20 mm. diameter.

*exclusa* Sarg. Fruit oblong, rarely ovoid, bright cherry-red, dark dotted, about 13 mm. diameter.

*Huntiana* Sarg. Fruit obovoid, scarlet, dark dotted, 16–18 mm. diameter.

*lauta* Sarg. Fruit oblong or short-oblong, bright orange-red, dark dotted, 15–18 mm. diameter.

*pennsylvanica* Ashe. Fruit globular or oblong, dull red mottled with green, russet and scarlet, 15–20 mm. diameter.

*Robesoniana* Sarg. Fruit oblong, bright scarlet, pale dotted, 10–15 mm. diameter.

BB. Stamens about 20

C. Leaves of flowering branches mostly cuneate or rounded at base (on vigorous shoots truncate or subcordate)

*amabilis* Ashe. Fruit globose, bright scarlet or red, about 20 mm. diameter. Color of anthers unknown.

*dispressa* Ashe. Fruit pyriform or obovoid, bright cherry-red, 10–15 mm. diameter.

*gravida* Beadle. Fruit depressed-globose, red, 12–15 mm. diameter. Leaves sometimes broader, subcordate on shoots.

*induta* Sarg. Fruit short-oblong, crimson or reddish-yellow, pale dotted, 18–20 mm. diameter.

*lanuginosa* Sarg. Fruit subglobose to short-oblong, dark crimson, pale dotted, 10–12 mm. (or larger) diameter. Leaves sometimes broader, subcordate on shoots.

*Kelloggii* Sarg. Fruit subglobose to short-oval, bright yellow with pale lenticles, about 20 mm. diameter.

*quercina* Ashe. Fruit subglobose, dark red, pale dotted, 10–15 mm. diameter.

*radians* Sarg. Fruit short-oblong or obovoid, crimson, pale dotted, 16–18 mm. diameter.

*texana* Buckley. Fruit obovoid to short-oblong, bright scarlet, 12–18 mm. diameter.

CC. Leaves of flowering branches broader, rounded to subcordate at base (on vigorous shoots cordate)

*brachyphylla* Sarg. Fruit subglobose, dull dark red, 10–14 mm. diameter.

*corusca* Sarg. Fruit short-oblong to obovoid, dark cherry-red, pale dotted, 12–15 mm. diameter.

*dasyphylla* Sarg. Fruit short-oblong, crimson, pale dotted, 18–20 mm. diameter.

*Fulleriana* Sarg. Fruit short-oblong, scarlet, pale dotted, about 12 mm. diameter.

*gravida* Beadle. Leaves sometimes narrowed at base. Fruit characters as given above.

*lanuginosa* Sarg. Leaves sometimes narrowed at base. Fruit characters as given above.

*nupera* Ashe. (?) Fruit globular or slightly oblong, dark red, 13–15 mm. diameter. Color of anthers unknown.

*placens* Sarg. Fruit obovoid, scarlet, 10–12 mm. diameter.

*valens* Ashe. (?) Fruit subglobose, bright red, 16–20 mm. diameter. Color of anthers unknown.

*venosa* Ashe. (?) Fruit globose or subglobose, bright red, 15–18 mm. diameter. Color of anthers unknown.

*verna* Ashe. (?) Fruit subglobose, dark red, 16–18 mm. diameter. Color of anthers unknown.

*vesca* Ashe. (?) Fruit subglobose, scarlet, 18–24 mm. diameter. Color of anthers unknown.

AA. Anthers white, cream or yellow

B. Stamens about 10

C. Leaves of flowering branches mostly narrowed or rounded at base (on vigorous shoots truncate to subcordate)

- Arnoldiana* Sarg. Fruit subglobose, bright crimson with pale lenticles, 15–20 mm. diameter.
- champlainensis* Sarg. Fruit obovoid to oblong, bright scarlet with pale lenticles, 15–20 mm. diameter. Leaves sometimes broader.
- submollis* Sarg. Fruit obovoid, bright orange-red, 15–20 mm. diameter.
- Tracyi* Ashe. Fruit subglobose, deep scarlet, 8–12 mm. diameter.
- uvaldensis* Sarg. Fruit subglobose to short-oblong, orange-red, 12–14 mm. diameter.
- CC. Leaves of flowering branches broader, mostly rounded to subcordate at base (on vigorous shoots cordate)
- champlainensis* Sarg. Leaves often narrowed at base. Fruit characters as given above.
- contortifolia* Sarg. Fruit subglobose to short-oblong, bright cherry-red, about 15 mm. diameter.
- Tatnalliana* Sarg. Fruit globose, obovoid or rarely oblong, bright orange-red, pale dotted, 10–12 mm. diameter.
- BB. Stamens about 20
- C. Leaves of flowering branches mostly narrowed or rounded at base (on vigorous shoots truncate or subcordate)
- amabilis* Ashe. (?) Color of anthers unknown. Fruit characters as given above.
- arkansana* Sarg. Fruit oblong or rarely obovoid, bright crimson with dark lenticles, 13–18 mm. diameter.
- Berlandieri* Sarg. Fruit short-oblong to subglobose, scarlet, 10–16 mm. diameter.
- canadensis* Sarg. Fruit short-oblong to subglobose, crimson with pale lenticles, 10–15 mm. diameter.
- cibaria* Beadle. Fruit short-oblong to obovoid, red, 12–15 mm. diameter.
- dumetosa* Sarg. Fruit obovoid, scarlet, dark dotted, 10–15 mm. diameter.
- invisa* Sarg. Fruit short-oblong, orange-red, pale dotted, 10–12 mm. diameter.
- limaria* Sarg. Fruit oval to ovoid or short-oblong, crimson, pale dotted, 12–14 mm. diameter. Leaves sometimes broad-based.
- meridionalis* Sarg. Fruit short-oblong to subglobose, scarlet, 10–12 mm. diameter.
- mollipes* Sarg. Fruit obovoid, scarlet, pale dotted, 8–9 mm. diameter. Leaves sometimes broader-based.
- obtecta* Ashe. Fruit pyriform, dark red, 12–15 mm. diameter.
- Ridgwayi* Sarg. Fruit subglobose or short-oblong, scarlet, 10–12 mm. diameter.
- sera* Sarg. Fruit obovoid or short-oblong, dull dark red, pale dotted, 12–20 mm. diameter.
- Treleasei* Sarg. Fruit subglobose, crimson, pale dotted, 12–17 mm. diameter.
- umbrosa* Sarg. Fruit obovoid to subglobose, scarlet, pale dotted, about 10 mm. diameter.



*viburnifolia* Sarg. Fruit subglobose, bright canary-yellow, 15–20 mm. diameter.

CC. Leaves of flowering branches broader, mostly rounded to subcordate at base (on vigorous shoots cordate)

*altrix* Ashe. Fruit globose, bright red, 13–18 mm. diameter.

*cibilis* Ashe. Fruit depressed-globose, dark red, 12–15 mm. diameter.

*declivitatis* Sarg. Fruit subglobose to short-oblong, dull red, 12–13 mm. diameter.

*lanigera* Sarg. Fruit obovoid, crimson, 10–11 mm. diameter.

*lasiantha* Sarg. Fruit oval or subglobose, crimson, pale dotted, about 12 mm. diameter.

*limaria* Sarg. Leaves sometimes narrowed at base. Fruit characters as given above.

*macrophylla* Sarg. Fruit oval, crimson, pale dotted, 15–16 mm. (or more) diameter.

*mollipes* Sarg. Leaves sometimes narrowed at base. Fruit characters as given above.

*mollis* Scheele. Fruit short-oblong to subglobose, scarlet, dark dotted, 20–25 mm. diameter.

*nupera* Ashe. (?) Color of anthers unknown. Fruit characters as given above.

*nutans* Sarg. Fruit short-oblong to subglobose or slightly obovoid, orange-red with dark lenticles, 10–12 mm. diameter.

*redolens* Ashe. Fruit globose, dark red, 15–20 mm. diameter.

*valens* Ashe. (?) Color of anthers unknown. Fruit characters as given above.

*venosa* Ashe. (?) Color of anthers unknown. Fruit characters as given above.

*verna* Ashe. (?) Color of anthers unknown. Fruit characters as given above.

*vesca* Ashe. (?) Color of anthers unknown. Fruit characters as given above.

### XI. Dilatatae

Anthers pink, rose or purple. Stamens about 20

A. Leaves of flowering branches mostly narrowed at base, glabrous or nearly so

*durobrivensis* Sarg. Fruit globose, crimson, pale dotted, about 16 mm. diameter.

*hudsonica* Sarg. Fruit subglobose, crimson, 16–18 mm. diameter.

*suborbiculata* Sarg. Fruit subglobose, dull red blotched with green, 12–15 mm. diameter.

AA. Leaves of flowering branches mostly truncate to cordate

B. Leaves at flowering time glabrous or nearly so; corymbs glabrous

*coccinioides* Ashe. Fruit subglobose, dark crimson, pale dotted, 15–20 mm. diameter.

BB. Leaves at flowering time short villous above; corymbs more or less villous

*dilatata* Sarg. Fruit subglobose, bright scarlet, 18–20 mm. diameter.

## XII. *Rotundifoliae*

A. Anthers pink, rose or purple (AA see p. 114)

B. Stamens about 10 (5–10)

C. Corymbs at flowering time glabrous or nearly so

*Bicknellii* Egglest. Fruit globose, red, 10–12 mm. diameter.

*cernua* Ashe. Fruit oblong, crimson, 13–14 mm. diameter.

*chateaugayensis* Sarg. Fruit short-oblong to oval, scarlet, pale dotted, 8–10 mm. diameter.

*dacrioidea* Sarg. Fruit obovoid, orange-red, pale dotted, 10–12 mm. diameter.

*Harryi* Sarg. Fruit short-oblong to slightly obovoid, cherry-red, pale dotted, 8–9 mm. diameter.

*propria* Sarg. Fruit oblong or slightly ovoid, scarlet, pale dotted, 7–8 mm. diameter.

*spissa* Sarg. Fruit subglobose to oval, scarlet, pale dotted, 7–9 mm. diameter.

*Williamsii* Egglest. (?) Fruit globose, red, 8–10 mm. diameter. Color of anthers unknown.

CC. Corymbs at flowering time villous or pubescent

*Fernaldii* Sarg. Fruit obovoid, bright scarlet, 9–10 mm. diameter.

*illuminata* Sarg. (?) Fruit oval to subglobose, bright cherry-red, 7–8 mm. diameter. Color of anthers unknown.

*Jonesae* Sarg. Fruit oblong to oblong-obovoid, dark carmine red, punctate, 12–15 mm. diameter.

*Kennedyi* Sarg. Fruit slender-obovoid, crimson, 7–8 mm. diameter.

*lemingtonensis* Sarg. Fruit short-oblong, scarlet, pale dotted, 8–9 mm. diameter.

*maligna* Sarg. Fruit short-oblong, crimson, pale dotted, 9–10 mm. diameter.

*praecoqua* Sarg. Fruit subglobose, dark crimson, 10–15 mm. diameter.

*Proctoriana* Sarg. Fruit subglobose, crimson, pale dotted, 10–12 mm. diameter.

*puberis* Sarg. Fruit short-oblong, orange-red, pale dotted, 9–10 mm. diameter.

*verrucalis* Peck. Fruit subglobose to short-oblong, scarlet, 8–10 mm. diameter.

*Websteri* Sarg. Fruit short-oblong, bright cherry-red, pale dotted, 8–10 mm. diameter.

BB. Stamens about 20 (15–20)

C. Corymbs at flowering time glabrous or nearly so

*Brainerdii* Sarg. Fruit oblong, bright scarlet, 8–10 mm. diameter.

*kingstonensis* Sarg. Fruit subglobose, dark red, about 15 mm. diameter.

*meiophylla* Sarg. Fruit subglobose, dark red, about 10 mm. diameter.

Corymbs sometimes slightly villous.

*neobaxteri* Sarg. Fruit short-oblong, rich deep red, pale dotted, 10-12 mm. diameter.

*neosmithii* Sarg. Fruit subglobose, light green becoming russet, 16-17 mm. diameter.

*scopulorum* Sarg. Fruit short-oblong to slightly obovoid, orange-red, pale dotted, 8-10 mm. diameter.

CC. Corymbs at flowering time villous or pubescent

*Blanchardii* Sarg. Fruit short-oblong, dark cherry-red, 10-12 mm. diameter.

*Evansiana* Sarg. Fruit subglobose to short-oblong, scarlet, 10-13 mm. diameter.

*insolens* Sarg. Fruit short-oblong, scarlet, 8-10 mm. diameter.

*mansfieldensis* Sarg. Fruit broad-obovoid or subglobose, dark red, 8-10 mm. diameter.

*meiophylla* Sarg. Corymbs sometimes nearly or quite glabrous. Fruit characters as given above.

AA. Anthers white, cream or yellow

B. Stamens about 10 (5-10)

C. Corymbs at flowering time glabrous or nearly so

*Dodgei* Ashe. Fruit depressed-globose, dull crimson or orange, 10-15 mm. diameter.

*crassifolia* Sarg. Fruit short-oblong, orange-red, pale dotted, 10-11 mm. diameter.

*grossa* Sarg. Fruit subglobose to short-oblong, dull orange-red, 8-10 mm. diameter.

*illuminata* Sarg. (?) Color of anthers unknown. Fruit characters as given above.

*mercerensis* Sarg. Fruit short-oblong, orange-red, 10-12 mm. diameter.

*repentina* Sarg. Fruit subglobose to slightly obovoid, red, 12-13 mm. diameter. Stamens sometimes 20.

*rotundata* Sarg. Fruit short-oblong, orange-red blotched with red and with pale lenticles, 15-20 mm. diameter.

*rotundifolia* Moench. Fruit subglobose, dark crimson, dark dotted, 8-10 mm. diameter. Corymbs villous in variety.

*varians* Sarg. Fruit subglobose, dark red blotched with green, pale dotted, 10-12 mm. diameter. Stamens 10-15.

*Williamsii* Egglest. (?) Color of anthers unknown. Fruit characters as given above.

CC. Corymbs at flowering time villous or pubescent

*Brunetiana* Sarg. Fruit oblong, bright clear red, pale dotted, 9-10 mm. diameter.

*caesariata* Sarg. Fruit oval or slightly obovoid, dark crimson, dark dotted, 7-12 mm. diameter.

*coccinata* Sarg. Fruit short-oblong to slightly obovoid, very dark crimson, pale dotted, 11–12 mm. diameter.

*divergens* Sarg. Fruit short-oblong to subglobose, scarlet, pale dotted, 4–5 mm. (or more) diameter. Stamens sometimes 18–20.

*Faxonii* Sarg. Fruit oblong, dark crimson with pale lenticles, 8–10 mm. diameter.

*Jackii* Sarg. Fruit ovoid to oblong, angled, dull dark red, pale dotted, 10–12 mm. diameter.

*Keepii* Sarg. Fruit oblong, bright clear red, white dotted, 9–10 mm. diameter.

*praetermissa* Sarg. Fruit short-oblong to ovoid, crimson, pale dotted, 8–9 mm. diameter.

*subrotundifolia* Sarg. Fruit short-oblong, crimson, pale dotted, 10–15 mm. diameter.

BB. Stamens about 20 (15–20)

C. Corymbs at flowering time glabrous or nearly so

*inaudita* Sarg. Fruit subglobose to short-oblong, crimson, pale dotted, 12–14 mm. diameter.

*Macauleyae* Sarg. Fruit subglobose to short-oblong, dark crimson, pale dotted, 10–12 mm. diameter.

*Margaretta* Ashe. Fruit subglobose, reddish or orange, about 10 mm. diameter. Corymbs sometimes slightly villous.

*Maribella* Sarg. Fruit short-oblong, crimson, pale dotted, 9–10 mm. diameter.

*repentina* Sarg. Stamens sometimes only 10. Fruit characters as given above.

*varians* Sarg. Stamens usually about 10. Fruit characters as given above.

CC. Corymbs at flowering time villous or pubescent

*divergens* Sarg. Stamens sometimes only 10. Fruit characters as given above.

*Margaretta* Ashe. Corymbs usually glabrous. Fruit characters as given above.

*noveboracensis* Sarg. Fruit subglobose to short-oblong, crimson, pale dotted, about 10 mm. diameter.

*Oakesiana* Egglest. Fruit pyriform to oblong, yellowish-red, about 10 mm. diameter.

### XIII. Microcarpae

A. Anthers pink or rose; stamens about 20

*apiifolia* Michx. Fruit short-oblong, bright scarlet, 4–5 mm. diameter.

Leaves pubescent, deeply lobed.

*Phaenopyrum* Medic. Fruit subglobose, scarlet, 4–6 mm. diameter.

Leaves glabrous, slightly lobed.

AA. Anthers cream or yellow; stamens about 20

*spathulata* Michx. Fruit subglobose, bright scarlet, 4–5 mm. diameter.

Leaves narrow, spatulate.



Youngii Sarg. Fruit globose to subglobose, scarlet, 5-7 mm. diameter.  
Leaves broadly ovate or deltoid in outline.

#### XIV. Flavae

A. Anthers pink, rose or purple (AA see p. 117)

B. Stamens about 10

C. Leaves at flowering time glabrous or nearly so  
alleganiensis Beadle. Fruit globular-pyriform, red, 8-12 mm. diameter.  
frugiferens Beadle. Fruit globose or subglobose, red, 9-13 mm. diameter.  
Leaves sometimes slightly villous.

CC. Leaves at flowering time villous or pubescent  
frugiferens Beadle. Leaves usually glabrous or nearly so. Fruit characters as given above.  
villaris Beadle. (?) Fruit pyriform, yellow or orange-yellow flushed with red, 8-11 mm. diameter. Floral characters unknown.

BB. Stamens about 20 (15-20)

C. Leaves at flowering time glabrous or nearly so  
adunca Beadle. Fruit globose, red, 12-15 mm. diameter.  
clara Beadle. Fruit globose, orange-red, 9-12 mm. diameter. Leaves at flowering time sometimes slightly villous.  
extraria Beadle. Fruit subglobose or oval, red, 9-12 mm. diameter.  
ignava Beadle. Fruit globose or subglobose, red or orange-red, 8-12 mm. diameter.

limata Beadle. Fruit globose, red, 10-13 mm. diameter.  
quaesila Beadle. Fruit subglobose or slightly pyriform, red and orange, 8-11 mm. diameter. Young leaves sometimes slightly villous.  
sodalis Beadle. (?) Fruit pyriform, orange-red, 8-12 mm. diameter.  
Leaves sometimes slightly villous. Color of anthers unknown.  
valida Beadle. Fruit subglobose, color not given, 12-15 mm. diameter.

CC. Leaves at flowering time villous or pubescent  
arrogans Beadle. Fruit short-oval to slightly pyriform, red, 9-10 mm. diameter.

clara Beadle. Leaves usually nearly glabrous at flowering time. Fruit characters as given above.

colonica Beadle. (?) Fruit pyriform, orange-red, 10-13 mm. diameter.  
Color of anthers unknown.

condigna Beadle. Fruit subglobose or pyriform, red or orange and greenish, 6-8 mm. diameter.

consanguinea Beadle. Fruit globose to depressed-globose, red, 9-12 mm. diameter.

egregia Beadle. Fruit subglobose, orange or flushed with red, 10-12 mm. diameter.

flava Ait. Leaves at flowering time sometimes nearly glabrous. Fruit characters as given above.

illudens Beadle. (?) Fruit pyriform, yellow, 8-11 mm. diameter. Color of anthers unknown.

invicta Beadle. (?) Fruit pyriform, color not given, 6-8 mm. diameter.  
Color of anthers unknown.

lepida Beadle. (?) Fruit subglobose, orange or orange-red, 7-11 mm. diameter. Color of anthers unknown.

Michauxii Pers. (?) Fruit subglobose, red or ruddy, 8-12 mm. diameter.  
Color of anthers unknown.

munda Beadle. (?) Fruit pyriform, color not given, 7-9 mm. diameter.  
Leaves sometimes nearly glabrous. Color of anthers unknown.

pexa Beadle. Fruit globose, color not given, 7-9 mm. diameter. Color of anthers unknown.

quaesita Beadle. Leaves sometimes glabrous or nearly so. Fruit characters as given above.

segnis Beadle. (?) Fruit globose, red, 8-12 mm. diameter. Color of anthers unknown.

sodalis Beadle. (?) Leaves sometimes nearly glabrous. Color of anthers unknown. Fruit characters as given above.

tristis Beadle. Fruit short-oval, red or orange-red, 10-12 mm. diameter.

vicenda Beadle. Fruit pyriform, yellow or flushed with red, 10-12 mm. diameter.

yadkinensis Ashe. (?) Fruit pyriform or subglobose, dull red or orange, 7-11 mm. diameter. Color of anthers unknown.

AA. Anthers white, cream or yellow

B. Stamens about 10 (5-10)

C. Leaves at flowering time glabrous or nearly so

impar Beadle. Fruit oval, red, 10-13 mm. diameter. Stamens sometimes 15 or more.

CC. Leaves at flowering time villous or pubescent

aprica Beadle. Fruit globose, red or orange-red, 9-14 mm. diameter.

mira Beadle. Fruit subglobose, color not given, 10-12 mm. diameter.  
Stamens sometimes 15-20.

BB. Stamens about 20

C. Leaves at flowering time glabrous or nearly so

abditata Beadle. Fruit globose, red, 10-15 mm. diameter. Leaves sometimes slightly villous.

attrita Beadle. Fruit subglobose, yellow, splashed with red, 10-14 mm. diameter. Leaves sometimes slightly villous.

calva Beadle. Fruit globose, yellow or orange-red, 7-10 mm. diameter.

impar Beadle. Stamens sometimes only 10. Fruit characters as given above.

lacrimata Beadle. Fruit globose or subglobose, yellow or orange and red, 8-10 mm. diameter.

sodalis Beadle. (?) Leaves at flowering time sometimes slightly villous.  
Color of anthers unknown. Fruit characters as given above.

sororia Beadle. Fruit globose, red or red and yellow, 12-18 mm. diameter.  
Leaves usually somewhat villous.

*teres* Beadle. Fruit oblong, red, 8–10 mm. diameter.

CC. Leaves at flowering time villous or pubescent

*abditata* Beadle. Leaves sometimes glabrous or nearly so. Fruit characters as given above.

*adusta* Beadle. Fruit short-pyriform, orange-red, spotted and streaked with red, 9–11 mm. diameter.

*alabamensis* Beadle. Fruit oval, red, 10–15 mm. diameter.

*amica* Beadle. Fruit subglobose, orange, blotched with red, 10–13 mm. diameter.

*anisophylla* Beadle. Fruit globose or subglobose, orange or orange and red, 6–8 mm. diameter.

*annosa* Beadle. Fruit subglobose or oval, orange-red or red and orange, 10–12 mm. diameter.

*arguta* Beadle. Fruit globose, red, 7–9 mm. diameter.

*atritata* Beadle. Leaves usually glabrous or nearly so. Fruit characters as given above.

*audens* Beadle. Fruit pyriform, orange-yellow flushed with red, 9–12 mm. diameter.

*colonica* Beadle. (?) Color of anthers unknown. Fruit characters as given above.

*cirrata* Beadle. Fruit globose or subglobose, red, 7–9 mm. diameter.

*compitalis* Beadle. Fruit subglobose or oval, red, 10–13 mm. diameter.

*constans* Beadle. Fruit subglobose or slightly pyriform, bright orange-red, 10–12 mm. diameter.

*crocea* Beadle. Fruit pyriform, yellow to russet-red, 9–12 mm. diameter.

*cullasagensis* Ashe. Fruit globular or slightly oblong, dark orange, mottled with orange-red and crimson, 10–14 mm. diameter.

*curva* Beadle. Fruit pyriform, orange or orange and red, 6–9 mm. diameter.

*dapsilis* Beadle. Fruit globose or subglobose, yellow or orange and red, 10–15 mm. diameter.

*dispar* Beadle. Fruit subglobose or oval, red, 7–10 mm. diameter.

*dolosa* Beadle. Fruit globose or short-oval, yellow or orange, 9–12 mm. diameter.

*egens* Beadle. Fruit subglobose or slightly oval, orange-red or orange and red, 9–11 mm. diameter.

*exilis* Beadle. Fruit globose or subglobose, red or ruddy, 5–7 mm. diameter.

*florens* Beadle. Fruit globose, orange-red, 10–15 mm. diameter.

*floridana* Sarg. Fruit obovoid or short-oblong, bright orange-red, pale dotted, 7–9 mm. diameter.

*frugalis* Beadle. Fruit subglobose, red, 7–9 mm. diameter.

*furtiva* Beadle. Fruit pyriform, orange or orange and red, 7–9 mm. diameter.

*galbana* Beadle. Fruit globose, red, 9–13 mm. diameter.

- geniculata* Ashe. (?) Fruit pyriform, lemon-yellow or orange mottled with red, 7-12 mm. diameter. Color of anthers unknown.
- illudens* Beadle. (?) Color of anthers unknown. Fruit characters as given above.
- incana* Beadle. Fruit pyriform, orange-yellow or orange and red, 8-9 mm. diameter.
- inopina* Beadle. Fruit pyriform, yellow or orange-yellow and red, 8-11 mm. diameter.
- inops* Beadle. Fruit globose, orange or orange and red, 10-14 mm. diameter.
- insidiosa* Beadle. Fruit oval or subglobose, red, 9-12 mm. diameter.
- integra* Beadle. Fruit globose, red, 10-15 mm. diameter.
- invicta* Beadle. (?) Color of anthers unknown. Fruit characters as given above.
- lanata* Beadle. Fruit globose, color not given, 8-11 mm. diameter.
- lassa* Beadle. Fruit pyriform, orange-red, 8-10 mm. diameter.
- laxa* Beadle. Fruit subglobose or short-oblong, red, 7-9 mm. diameter.
- lepida* Beadle. (?) Color of anthers unknown. Fruit characters as given above.
- meridiana* Beadle. Fruit pyriform, orange, yellow or yellow flushed with red, 7-9 mm. diameter.
- Michauxii* Pers. (?) Color of anthers unknown. Fruit characters as given above.
- munda* Beadle. (?) Color of anthers unknown. Fruit characters as given above.
- panda* Beadle. Fruit globose or depressed-globose, orange-red or orange tinged with red, 10-15 mm. diameter.
- pexa* Beadle. (?) Color of anthers unknown. Fruit characters as given above.
- pulla* Beadle. Fruit subglobose to oval, orange-yellow flushed with red, 9-12 mm. diameter.
- Ravenelii* Sarg. Fruit globose to short-oblong, bright orange-red, dark dotted, 10-12 mm. diameter.
- recurva* Beadle. Fruit pyriform or short-pyriform, red, 7-9 mm. diameter.
- resima* Beadle. Fruit pyriform, orange-red, blotched with red, 9-11 mm. diameter.
- rimosa* Beadle. Fruit short-pyriform, yellow or orange-yellow and red, 9-12 mm. diameter.
- segnis* Beadle. Color of anthers unknown. Fruit characters as given above.
- senta* Beadle. Fruit globose, red, 10-14 mm. diameter.
- sodalis* Beadle. (?) Color of anthers unknown. Fruit characters as given above.
- sororia* Beadle. Leaves sometimes nearly or quite glabrous. Fruit characters as given above.



*versuta* Beadle. Fruit short-pyriform, orange or greenish-yellow and red, 6-9 mm. diameter.

*vicana* Beadle. Fruit pyriform or oblong-pyriform, yellow or orange, blotched with red, 10-14 mm. diameter.

*yadkinensis* Ashe. (?) Color of anthers unknown. Fruit characters as given above.

### XV. Bracteatae

Anthers yellow; stamens about 20 (15-20); corymbs at flowering time villous or pubescent

*Ashei* Beadle. Fruit subglobose or short-oval, bright red, 10-14 mm. diameter.

*Harbisonii* Beadle. Fruit globose, red, 10-13 mm. diameter.

### XVI. Triflorae

Anthers white, cream or yellow in this group

A. Stamens about 10

*austromontana* Beadle. Fruit globose, bright red, 12-15 mm. diameter.

AA. Stamens about 20

*conjungens* Sarg. Fruit subglobose, orange-red, about 10 mm. diameter.

*triflora* Chapman. Fruit globose, red, 12-15 mm. diameter.

### XVII. Uniflorae

A. Anthers pink, rose or purple; stamens about 20

*arenicola* Ashe. (?) Fruit pyriform, orange or orange-red, 8-10 mm. diameter. Color of anthers unknown.

*bisulcata* Ashe. (?) Fruit pyriform, yellow or greenish-yellow, 10-12 mm. diameter. Color of anthers unknown.

*Croomiana* Sarg. Fruit obovoid, yellow or greenish-yellow, 8-9 mm. diameter.

*rhodella* Ashe. Fruit pyriform, orange and red, 8-12 mm. diameter.

*raleighensis* Ashe. (?) Fruit globular, yellow or greenish, 7-9 mm. diameter. Color of anthers unknown.

AA. Anthers white, cream or yellow; stamens about 20

*arenicola* Ashe. (?) Color of anthers unknown. Fruit characters as given above.

*armentalis* Beadle. Fruit globose, red, about 10 mm. diameter.

*bisulcata* Ashe. (?) Color of anthers unknown. Fruit characters as given above.

*Brittonii* Egglest. Fruit globose or short-pyriform, reddish-brown, 8-12 mm. diameter.

*choriophylla* Sarg. Fruit subglobose to slightly obovoid, orange-red, 10-12 mm. diameter.

*Earlei* Ashe. Fruit pyriform, yellow or greenish-yellow, 7-9 mm. diameter.

*gregalis* Beadle. Fruit pyriform, red or ruddy, 10-14 mm. diameter.

*raleighensis* Ashe. (?) Color of anthers unknown. Fruit characters as given above.

*Smithii* Sarg. Fruit short-oblong, orange or orange-green, about 12 mm. diameter.

*trianthophora* Sarg. Fruit obovoid, light orange-red, pale dotted, 8-12 mm. diameter.

*uniflora* Moench. Fruit subglobose, yellow or greenish-yellow, 10-14 mm. diameter.

### XVIII. Aestivales

Anthers red, rose or purple in this group

A. Young leaves and branchlets glabrous or nearly so  
*aestivalis* T. & G. Fruit short-oblong or subglobose, scarlet, 12-15 mm. diameter.

*fruticosa* Sarg. Fruit subglobose, light orange-red, pale dotted, about 10 mm. diameter. Young leaves sometimes slightly villous.

*monantha* Sarg. Fruit subglobose or short-oblong, cherry-red, 8-10 mm. diameter. Young leaves sometimes slightly villous.

AA. Young leaves and branchlets villous

*fruticosa* Sarg. Young leaves usually nearly glabrous. Fruit characters as given above.

*monantha* Sarg. Young leaves sometimes slightly villous. Fruit characters as given above.

*opaca* Hook. Fruit depressed-globose, scarlet, pale dotted, 15-20 mm. diameter.

*rufula* Sarg. Fruit subglobose, scarlet, about 12 mm. diameter.

### XIX. Brachyacanthae

Anthers yellow; stamens about 20

*brachyacantha* Sarg. & Engelm. Fruit subglobose or obovoid, bright blue (straw-color in var. *leucocarpa* Sarg.), 12-15 mm. diameter.

*saligna* Greene. Fruit globose, blue-black, 5-8 mm. diameter.

### XX. Douglasianae

A. Anthers pink, rose or purple

B. Stamens about 10 (5-10)

C. Corymbs and leaves glabrous or nearly so at flowering time  
*cerronis* Nelson. Fruit globose, red, 8-10 mm. diameter.

*erythropoda* Ashe. Fruit subglobose, red or orange and red, 7-8 mm. diameter.

*Douglasii* Lindl. Fruit short-oblong, black (chestnut-color in f. *badia* Sarg.), 10-12 mm. diameter. Corymbs sometimes slightly villous. Stamens sometimes 20.

CC. Corymbs and leaves villous at flowering time

*Douglasii* Lindl. Corymbs usually glabrous. Fruit characters as given above. Stamens sometimes 20.

*rivularis* Nutt. Fruit short-oblong, crimson, pale dotted, becoming black, about 10 mm. diameter.

BB. Stamens about 20

*Douglasii* Lindl. Stamens sometimes 5-10. Fruit characters as given above.

AA. Anthers white, cream or yellow; stamens about 10 (5-10); corymbs and leaves villous at flowering time

*colorado* Ashe. Fruit subglobose, bright red, 7-8 mm. diameter.

*columbiana* Howell. Fruit obovoid, scarlet, 8-12 mm. diameter.

*Piperi* Britton. Fruit spherical or nearly so, coral-red, about 12 mm. diameter.

## XXI. *Anomalae*

Anthers pink, rose or purple in this group

A. Stamens about 10 (5-10)

B. Corymbs at flowering time glabrous or nearly so  
*asperifolia* Sarg. Fruit oblong, bright scarlet, about 10 mm. diameter.

Corymbs sometimes slightly villous.

*Brockwayae* Sarg. Fruit short-oblong to slightly obovoid, dark vinous-purple, 10-12 mm. diameter.

*cyclophylla* Sarg. Fruit subglobose to short-oblong, orange-red, pale dotted, about 10 mm. diameter.

*Dunbarii* Sarg. Fruit subglobose, crimson, dark dotted, 12-14 mm. diameter. Corymbs sometimes slightly villous.

*Egglestonii* Sarg. Fruit oblong, orange becoming crimson, pale dotted, about 10 mm. diameter. Corymbs sometimes slightly villous.

*floridula* Sarg. Fruit short-oblong to obovoid, crimson, 7-8 mm. diameter.

*improvisa* Sarg. Fruit obovoid-oblong, orange-red, 8-9 mm. diameter.

*inopinata* Sarg. Fruit subglobose, dark red, pale dotted, 7-9 mm. diameter.

Corymbs sometimes slightly villous.

*Knieskerniana* Sarg. Fruit short-oblong, scarlet, pale dotted, 10-11 mm. diameter.

*scabrida* Sarg. Fruit subglobose, scarlet, 8-12 mm. diameter. (Anthers described as pale yellow, but are pink or purple in specimens.)

BB. Corymbs at flowering time villous

*affinis* Sarg. Fruit short-oblong, oval or slightly obovoid, orange-red with pale lenticles, 9-10 mm. diameter.

*asperifolia* Sarg. Corymbs usually glabrous or nearly so. Fruit characters as given above.

*Dunbarii* Sarg. Corymbs often glabrous or nearly so. Fruit characters as given above.

*Egglestonii* Sarg. Corymbs sometimes glabrous or nearly so. Fruit characters as given above.

*honesta* Sarg. Fruit subglobose, cherry-red, pale dotted, 7-8 mm. diameter.

*Idaeae* Sarg. Fruit short-oblong to subglobose, crimson, pale dotted, about 10 mm. diameter.

*inopinata* Sarg. Corymbs sometimes nearly glabrous. Fruit characters as given above.

*misella* Sarg. Fruit short-oblong, crimson, pale dotted, about 10 mm. diameter.

*pinguis* Sarg. Fruit short-oblong, crimson, pale dotted, 8–10 mm. diameter.

*repulsans* Sarg. Fruit short-oblong to subglobose, orange-red, pale dotted, 9–10 mm. diameter.

AA. Stamens about 20 (15–20)

C. Corymbs at flowering time glabrous or nearly so

*brachyloba* Sarg. Fruit short-oblong to obovoid, orange-red with pale lenticles, 8–10 mm. diameter.

*Coleae* Sarg. Fruit subglobose, bright orange-red, pale dotted, 8–10 mm. diameter.

*errata* Sarg. Fruit short-oblong, dark red with pale lenticles, 10–12 mm. diameter.

*fallsiana* Sarg. Fruit subglobose, scarlet, pale dotted, 14–15 mm. (or less) diameter.

*putata* Sarg. Fruit oval, orange-red, dark dotted, about 8 mm. diameter.

*Seelyana* Sarg. Fruit short-oblong, dull orange-red, about 7 mm. diameter.

*urbana* Sarg. Fruit short-oblong, crimson, pale dotted, 9–10 mm. diameter.

CC. Corymbs at flowering time villous

*Saundersiana* Sarg. Fruit short-oblong, ovoid or depressed-globose, orange-red, with pale lenticles, about 10 mm. diameter.

*shirleyensis* Sarg. Fruit subglobose to short-oblong, orange-red, about 10 mm. diameter.

*virilis* Sarg. Fruit short-oblong to ovoid, scarlet, dark dotted, 8–9 mm. diameter.

## XXII. *Macracanthae*

A. Anthers pink, rose or purple (AA see p. 127)

B. Stamens about 10 (BB see p. 125)

C. Corymbs at flowering time glabrous or nearly so

*bristolensis* Sarg. Fruit oval, bright scarlet, pale dotted, 10–12 mm. diameter.

*cupulifera* Sarg. Fruit globose to short-oblong, scarlet, dark dotted, about 10 mm. diameter. Corymbs sometimes slightly villous.

*diaphora* Sarg. Fruit ovoid, crimson, pale dotted, 13–15 mm. diameter. Corymbs sometimes slightly villous.

*divida* Sarg. Fruit short-oblong to subglobose, crimson with pale lenticles, 10–12 mm. diameter.

*dumicola* Sarg. Fruit subglobose, dark red, pale dotted, about 10 mm. diameter. Corymbs sometimes slightly villous.

*laetifica* Sarg. Fruit subglobose to ovoid, crimson, pale dotted, 10–14 mm. (or less) diameter. Stamens sometimes 15–20.



*nuda* Sarg. Fruit short-oblong to subglobose, bright red, about 10 mm. diameter.

*Peckietta* Sarg. Fruit ovoid, red or greenish-red, 9-11 mm. diameter.

CC. Corymbs at flowering time villous or pubescent

*aquilonaris* Sarg. Fruit oblong, dull greenish-red, 8-10 mm. diameter.

*baccata* Sarg. Fruit subglobose, orange-red, pale dotted, 7-8 mm. diameter.

*Balkwillii* Sarg. Fruit short-oblong, orange-red blotched with yellow, 7-8 mm. diameter.

*Beckiana* Sarg. Fruit subglobose to obovoid, crimson, pale dotted, about 10 mm. diameter.

*Chapmanii* Ashe. Fruit globose or subglobose, bright red, 8-10 mm. diameter.

*coloradensis* Nelson. Fruit globose, bright red, about 8 mm. diameter.

*conspicua* Sarg. Fruit subglobose to short-oblong, crimson, 8-10 mm. diameter. Stamens sometimes 20.

*cupulifera* Sarg. Corymbs sometimes nearly or quite glabrous. Fruit characters as given above.

*Deweyana* Sarg. Fruit subglobose to short-oblong, scarlet with pale lenticles, 10-12 mm. diameter.

*diaphora* Sarg. Corymbs sometimes nearly or quite glabrous. Fruit characters as given above.

*dumicola* Sarg. Corymbs sometimes glabrous. Fruit characters as given above.

*fallax* Ashe. (?) Fruit depressed-globose, crimson, mottled with green and olive, 13-16 mm. diameter. Color of anthers unknown.

*fertilis* Sarg. Fruit subglobose, short-oblong or rarely ovoid, dark red, pale dotted, about 10 mm. diameter.

*flammea* Sarg. Fruit short-oblong to subglobose, orange-red, pale dotted, 10-11 mm. diameter.

*fulgens* Sarg. Fruit subglobose, crimson, pale dotted, 10-12 mm. diameter.

*illinoensis* Ashe. Fruit globose, scarlet, dark dotted, 8-11 mm. diameter.

*insperata* Sarg. Fruit obovoid, light orange-red, 8-10 mm. diameter.

(This species was described as having 20 stamens, probably through error.)

*integriloba* Sarg. Fruit subglobose, bright scarlet, with pale lenticles, 10-12 mm. diameter.

*laurentiana* Sarg. Fruit oblong, dark crimson, 8-10 mm. diameter.

*obscura* Sarg. Fruit obovoid, light orange-red, pale dotted, 9-10 mm. diameter.

*ogdensbergensis* Sarg. Fruit subglobose to short-oblong, crimson, pale dotted, 9-11 mm. diameter.

*prinoides* Sarg. Fruit globose or depressed-globose, scarlet, dark dotted, 8-9 mm. diameter.

*prunifolia* Pers. Fruit subglobose, dull crimson, 10-15 mm. diameter.

*rhombifolia* Sarg. Fruit subglobose, bright clear red, 8-9 mm. diameter.  
*Robinsonii* Sarg. Fruit oblong to slightly obovoid, bright scarlet, dark dotted, 7-8 mm. diameter.

*rupicola* Sarg. Fruit subglobose to short-oblong, bright orange-red, 9-11 mm. diameter.

*sheridana* Nelson. (?) Fruit spherical, scarlet, 8-9 mm. diameter.

*spinulosa* Sarg. Fruit short-oblong, orange-red, 5-6 mm. diameter.

BB. Stamens about 20 (15-20)

C. Corymbs at flowering time glabrous or nearly so

*Helenae* Sarg. Fruit short-oblong or ovoid, scarlet, 8-10 mm. diameter.

*laetifica* Sarg. Stamens sometimes 15 or more. Fruit characters as given above.

*menandiana* Sarg. Fruit subglobose, scarlet, pale dotted, about 12 mm. diameter. Corymbs sometimes slightly villous.

*micrantha* Sarg. Fruit subglobose, orange-red, pale dotted, 7-8 mm. diameter.

*neofluvialis* Ashe. Fruit subglobose, greenish-orange or flushed with red, 6-10 mm. diameter. (Stamens described as 10-15, but apparently about 20.)

*pisifera* Sarg. Fruit subglobose, crimson, pale dotted, 7-8 mm. diameter. Corymbs sometimes slightly villous.

*propixa* Sarg. Fruit subglobose to ovoid, crimson, pale dotted, 7-8 mm. diameter.

*radiosa* Sarg. Fruit subglobose, bright cherry-red, about 10 mm. diameter.

*rutila* Sarg. Fruit subglobose, orange-red, pale dotted, 8-10 mm. diameter.

Corymbs sometimes slightly villous.

*simulata* Sarg. Fruit short-oblong, dull orange-red, 7-9 mm. diameter.

Corymbs sometimes slightly villous.

*spinea* Sarg. Fruit subglobose to short-oblong, dark red, dark dotted, 6-7 mm. diameter.

*stenophylla* Sarg. Fruit short-oblong to obovoid, orange-red, pale dotted, 8-9 mm. diameter. Corymbs sometimes slightly villous.

*vaga* Sarg. Fruit ovoid or oval, orange-red, 6-7 mm. diameter. Corymbs sometimes slightly villous.

CC. Corymbs at flowering time villous or pubescent

*admiranda* Sarg. Fruit subglobose to short-oblong or ovoid, bright cherry-red, pale dotted, 12-14 mm. diameter.

*ardua* Sarg. Fruit subglobose to short-oblong, crimson, pale dotted, 12-14 mm. diameter.

*calpodendron* Medic. (?) Fruit pyriform or ellipsoid, red or orange-red, 6-8 mm. diameter.

*Calvinii* Sarg. Fruit oval to ovoid, scarlet, pale dotted, 8-10 mm. diameter.

*conspicua* Sarg. Stamens 10-20, according to description. Fruit characters as given above.

- diversa* Sarg. Fruit oval or slightly obovoid, crimson, pale dotted, 6-7 mm. diameter.
- efferata* Sarg. Fruit subglobose, scarlet, pale dotted, 8-9 mm. diameter.
- ensifera* Sarg. Fruit oval, bright orange-red, pale dotted, 8-9 mm. diameter.
- finitima* Sarg. Fruit short-oblong to subglobose, orange-red, pale dotted, about 10 mm. diameter.
- frutescens* Sarg. Fruit short-oblong, scarlet, pale dotted, 7-8 mm. diam.
- Gaultii* Sarg. Fruit subglobose to short-oblong, scarlet becoming dark crimson, 12-14 mm. diameter.
- gemmosa* Sarg. Fruit subglobose to short-oblong, scarlet, 12-14 mm. diameter.
- globosa* Sarg. Fruit globose to short-oblong, bright orange-red, dark dotted, 7-8 mm. diameter.
- hispidula* Sarg. Fruit obovoid, orange-red, 7-8 mm. diameter
- honeoyensis* Sarg. Fruit short-oblong or slightly ovoid, scarlet, pale dotted, 8-10 mm. diameter.
- longispina* Sarg. Fruit subglobose, scarlet, pale dotted, 8-10 mm. diam.
- manandiana* Sarg. Corymbs sometimes glabrous or nearly so. Fruit characters as given above.
- missouriensis* Ashe. Fruit pyriform or becoming subglobose, deep scarlet, 9-10 mm. diameter.
- obesa* Ashe. (?) Fruit globose or slightly oblong, scarlet, 8-9 mm. diameter. Color of anthers unknown.
- pisifera* Sarg. Corymbs sometimes glabrous or nearly so. Fruit characters as given above.
- pubifolia* Ashe. Fruit subglobose to short-oblong, scarlet or orange-red, 6-8 mm. diameter.
- rutila* Sarg. Corymbs sometimes nearly or quite glabrous, Fruit characters as given above.
- saeva* Sarg. Fruit subglobose to short-oblong, crimson, pale dotted, 8-10 mm. diameter.
- scabera* Sarg. Fruit subglobose to slightly ovoid, bright cherry-red, dark dotted, about 10 mm. diameter.
- simulata* Sarg. Corymbs sometimes glabrous or nearly so. Fruit characters as given above.
- sonnenbergensis* Sarg. Fruit subglobose or short-oblong, crimson, about 10 mm. diameter.
- spinifera* Sarg. Fruit subglobose to slightly ovoid, scarlet, pale dotted, 10-12 mm. diameter.
- stenophylla* Sarg. Corymbs sometimes glabrous or nearly so. Fruit characters as given above.
- succulenta* Schrad. Fruit globose, bright scarlet, 6-8 mm. diameter.
- tomentosa* L. Fruit obovoid, rarely subglobose, dull orange-red, 5-10 mm. diameter.



*vaga* Sarg. Corymbs sometimes glabrous or nearly so. Fruit characters as given above.

*Vailiae* Britton. Fruit subglobose, yellowish-green becoming red, 8-10 mm. diameter.

*vegeta* Sarg. Fruit subglobose, scarlet, pale dotted, 8-10 mm. diameter.

AA. Anthers white, cream or yellow

B. Stamens about 10 (5-10)

C. Corymbs at flowering time glabrous or nearly so

*chadfordiana* Sarg. Fruit subglobose, scarlet, pale dotted, 12-14 mm. diameter.

*delectabilis* Sarg. Fruit obovoid, scarlet, pale dotted, 8-9 mm. diameter.

Corymbs sometimes slightly villous.

*Doddsii* Ramaley. Fruit pyriform, bright red, about 9 mm. diameter.

*Emersoniana* Sarg. Fruit globose to subglobose, scarlet, pale dotted, 12-14 mm. diameter.

*glabrata* Sarg. Fruit subglobose, crimson blotched with yellow, pale dotted, 8-9 mm. diameter.

*Handyae* Sarg. Fruit subglobose, bright scarlet, pale dotted, 10-12 mm. diameter.

*peramoena* Sarg. Fruit short-oblong to ovoid, light scarlet blotched with yellow, pale dotted, 8-10 mm. diameter.

*picta* Sarg. Fruit subglobose, scarlet, pale dotted, 8-9 mm. diameter.

*spatiosa* Sarg. Fruit oval to globose or depressed-globose, scarlet blotched with yellow, pale dotted, 12-14 mm. diameter.

*venustula* Sarg. Fruit subglobose, crimson, pale dotted, about 10 mm. diameter.

CC. Corymbs at flowering time villous or pubescent

*agaia* Sarg. Fruit subglobose to short-oblong, dark crimson, pale dotted, 10-12 mm. diameter.

*armigera* Sarg. Fruit short-oblong to ovoid, crimson, pale dotted, 8-10 mm. diameter.

*coloradoides* Ramaley. Fruit globose, red or purplish, about 9 mm. diam.

*crux* Ashe. Fruit subglobose, bright scarlet, about 13 mm. diameter.

*debilis* Sarg. Fruit short-oblong, scarlet, 9-11 mm. diameter.

*delectabilis* Sarg. Corymbs sometimes glabrous or nearly so. Fruit characters as given above.

*Doddsii* Ramaley. Corymbs sometimes nearly glabrous. Fruit characters as given above.

*fallax* Ashe. (?) Color of anthers unknown. Fruit characters as above.

*ferentaria* Sarg. Fruit subglobose to short-oblong, crimson, pale dotted, about 12 mm. diameter.

*flagrans* Sarg. Fruit subglobose, dark crimson, 8-10 mm. diameter.

*fulgida* Sarg. Fruit subglobose, dark crimson, pale dotted, 10-12 mm. diameter.

*hystricina* Ashe. Fruit subglobose, bright scarlet, about 10 mm. diameter.



- macracantha* Lodd. Fruit globose, crimson, 5-6 mm. diameter.  
*microsperma* Sarg. Fruit short-oblong to subglobose, crimson, pale dotted, 7-10 mm. diameter.  
*mollicula* Sarg. Fruit subglobose to short-oblong, bright orange-red, pale dotted, 10-12 mm. diameter.  
*Laneyi* Sarg. Fruit subglobose, dark orange-red, pale dotted, about 6 mm. diameter.  
*pellucidula* Sarg. Fruit subglobose, scarlet, pale dotted, 12-14 mm. diameter.  
*peramoena* Sarg. Corymbs sometimes nearly or quite glabrous. Fruit characters as given above.  
*pertomentosa* Ashe. Fruit subglobose, red or yellowish (becoming dark red), 6-9 mm. diameter.  
*praeclara* Sarg. Fruit subglobose to ovoid, crimson, 8-10 mm. diameter.  
*pudens* Sarg. Fruit short-oblong, green or yellowish-red, 8-9 mm. diam.  
*Searsii* Sarg. Fruit subglobose, crimson, pale dotted, 8-10 mm. diameter.  
*stratfordensis* Sarg. Fruit oval, greenish-yellow mottled with crimson, 7-8 mm. diameter.

BB. Stamens about 20 (15-20)

- C. Corymbs at flowering time glabrous or nearly so  
*opica* Ashe. Fruit depressed-globose, crimson, about 12 mm. (or less) diameter. Corymbs sometimes finely pubescent.  
*tanuphylla* Sarg. Fruit short-oblong, crimson, 7-10 mm. diam.  
*vernans* Ashe. Fruit globose, bright scarlet, 9-12 mm. diameter. Corymbs sometimes slightly villous.

CC. Corymbs at flowering time villous or pubescent

- ambrosia* Sarg. Fruit short-oblong, crimson, dark dotted, 8-12 mm. diameter.  
*carrollensis* Sarg. Fruit ellipsoidal, dark red, 6-7 mm. diameter.  
*comans* Sarg. Fruit short-oblong to subglobose, orange-red, 7-8 mm. diameter.  
*ferta* Sarg. Fruit subglobose to short-oblong or ovoid, scarlet, pale dotted, 12-14 mm. (or usually less) diameter.  
*obesa* Ashe. (?) Color of anthers unknown. Fruit characters as above.  
*opica* Ashe. Corymbs sometimes nearly or quite glabrous. Fruit characters as given above.  
*structilis* Ashe. Fruit oblong or pyriform, orange or reddish-orange dotted with dark green and russet, 7-10 mm. diameter.  
*truculenta* Sarg. Fruit subglobose, dark red, pale dotted, 7-8 mm. diameter.  
*venulosa* Sarg. Fruit subglobose to ovoid or short-oblong, orange-red, 7-8 mm. diameter.  
*vernans* Ashe. Corymbs usually glabrous, according to description. Fruit characters as given above.